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ABSTRACT

Presented are 20 author contributed papers on the status of deaf persons, their needs, and innovative procedures developed to meet those needs, and reported are research and demonstration activities in the field of deafness. Among topics covered in the papers are: economic factors in deafness, training needs of rehabilitative personnel serving deaf persons, technical-vocational education, multiply handicapped deaf persons, mental health services, implications of recent court decisions and legislation, counseling, community services, adult services, telephonic assistance devices, and vocational evaluation. In the second half of the document, lists and descriptions are provided of research and projects such as those of the Rehabilitation Services Administration, centers on deafness (such as the Deafness Research and Training Center in New York), the Office of Education (including professional training programs and captioned films services), the Health Services Administration's Maternal and Child Health Program, and programs under the National Institute of Education. Other programs reported include those of the National Institute of Neurological Diseases and Stroke, the National Center for Health Statistics, the Army Audiology and Speech Center, and the Deafness Research Foundation. (LS)

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DEAFNESS

Contributed Papers and Reports of
Research and Professional Activities
in the Area of Deafness

Arthur G. Norris, Editor
Glenn T. Lloyd, Ed. D., Project Director

The manuscript for this volume was produced by the Professional Rehabilitation Workers with the Adult Deaf, Inc., under contract No. SRS-74-9 sponsored by the Office of Deafness and Communicative Disorders, Social and Rehabilitation Service, Department of Health, Education and Welfare.

Volume IV 1974

**Professional Rehabilitation Workers with the Adult Deaf, Inc.,
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ABOUT THE DEAF PERSON

- There are approximately 1,700,000 deaf Americans with no residual hearing. Another 12,000,000 Americans suffer from partial hearing losses of varying severity.

- Deaf Americans, by and large, are self-supporting, contributing citizens. They have responsible jobs, own homes, drive automobiles, and raise families. In short, they lead normal lives.

- In the United States, there are special public and private residential schools for deaf students. These schools pattern their residence programs in ways similar to private boarding schools.

- Many school districts throughout the United States operate special classes for deaf children in regular public schools.

- Deaf people do attend college. Some choose to attend universities and colleges with all hearing classmates. Others choose those colleges and universities which offer special programs for deaf students. Numerous Junior Colleges have instituted programs which provide support services such as notetakers and sign language interpreters. These services permit the deaf student to attend class and understand simultaneously what his hearing classmates hear.

- Two federally supported college programs for deaf youth exist. These are Gallaudet College in Washington, D.C. and the National Technical Institute for the Deaf (N.T.I.D.) in Rochester, New York. Gallaudet College, a liberal arts college, has been in existence since 1864, when Abraham Lincoln signed its Charter. With an enrollment of more than 1,000 students, Gallaudet offers the bachelor of arts degree in 19 major fields and the bachelor of science degree in 4 major fields.

  N.T.I.D. is located on the campus of the Rochester Institute of Technology. Deaf students registered for classes at N.T.I.D. attend classes with R.I.T. students, receiving training in 35 major areas. The emphasis is on scientific and technical/vocational education, students electing to pursue certificate and/or diploma programs, or degree programs leading to the associates or bachelors degree. N.T.I.D. was established in 1966 by an Act of Congress.

- Deaf Americans frequently encounter problems in obtaining services from their local communities. Their tax dollars help to support such community programs as adult education classes, neighborhood health clinics, and numerous public services. However, the communication difficulties faced by deaf persons often prove to be insurmountable barriers for

(continued on inside back cover)

them in receiving services to which they, like you, are entitled.

Lipreading is a partial solution. A deaf "listener" can perceive only 30%-40% of the sounds of spoken English by looking at the lips of a speaker. The burden of communication is on the deaf person who must often guess at the remainder of the message. Your most reliable means of communication with a deaf citizen is by pad and pencil. Such written communication will reduce any guesswork and anxiety for the deaf person.

Communities can ease these problems and provide equal access to public programs for deaf persons by hiring interpreters to work in such settings.

- Innocent deaf persons have been fatally injured in encounters with law enforcement officers. The reason? Inability to hear the commands of the officers. This is not the only area in which inability to hear is potentially threatening. Emergency warnings transmitted over the radio and television are not accessible to deaf citizens.

In any emergency situation clear communication is mandatory. Increased public awareness of the special needs of deaf and hearing-impaired persons will improve the situation.

- Deaf persons are employed in a wide range of occupations. Here are just a few: *actor; accountant; artist; biologist, carpenter/painter; chemist; clerical worker; computer programmer; dance/gymnastics instructor; draftsman; engineer; lawyer; mechanic; newscaster; printer; research scientist; social worker; statistician; teacher — all levels, pre-school to graduate school; vocational rehabilitation counselor.*

- Deaf people can and do talk. The terms "deaf-mute" and "deaf and dumb" are now archaic and considered offensive by many deaf people. Most deaf people have normal vocal organs and are taught to use them in their speech classes. However, because they are unable to hear their own voices, deaf persons cannot modulate them like normally hearing persons. Even after years of training, deaf people may have speech that is initially unintelligible to the average person. Once accustomed to "deaf speech," however, most people with a little effort are able to understand deaf people who speak.

Deaf persons regularly use their speech with their families, friends, and co-workers. These same persons may choose not to speak in dealing with the general public. This choice is based on their many experiences with the initial reaction of individuals to "deaf speech."

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PREFACE

To have had the responsibility for the production of this year's DEAFNESS Annual is a source of considerable pride for the Professional Rehabilitation Workers with the Adult Deaf. We believe that this series of publications (the third produced by PRWAD) makes a worth-while contribution to the literature of deafness. Further, in the performance of this task PRWAD fulfills several major, organizational objectives, namely,

> To promote and encourage scientific research of the needs and problems engendered by deafness;
>
> To sponsor professional publications for the promotion of inter- and intradisciplinary communication among professional persons primarily concerned with deaf adults, and others interested in such activities;
>
> To provide a forum which can be instrumental in bringing about a better understanding of deaf people as a whole by encouraging students, professionals and laymen to develop more than a superficial understanding of the needs and problems of deaf people.

All of these objectives are furthered by the publication of DEAFNESS.

The DEAFNESS Annual is the product of many hands. It is impossible to acknowledge, individually, all of the persons who have contributed to the material published herein. Authors are, of course, acknowledged by their by-lines as are some of those who contributed reports of on-going publicly-sponsored activities. The Editorial Advisory Board members, who have functioned magnificently in a guiding role and as reviewers of contributed material, are named in a special listing. Also, invaluable editorial assistance was provided, as a contribution to the work, by Dr. Dwight E. Gray who spent many hours reshaping tautological expression into the simple declarative sentence. But most of all, we should acknowledge the support of scores of unnamed individuals, both in and out of government, who contributed unselfishly of their time to provide useful information and guidance to the editor. Neither should we forget the support of the Office of Communicative Disorders, Social and Rehabilitation Service, Department of Health, Education and Welfare, which, by contract, funded the gathering and processing of the manuscript. Without such support this volume would not have been possible. We hope that all who helped will find satisfaction in their support of one of the many efforts to improve the condition of the deaf populace.

This year's DEAFNESS Annual follows closely the format of the two previous issues: A section containing contributed articles followed by a section listing grant-supported and private activities conducted in behalf of deaf people. The first part is roughly organized to present discussions of the status of deaf persons, their needs, and innovative procedures developed to meet these needs. The second part presents, largely in tabular form, data which describe research and demonstration activities in the field.

An added, accompanying feature of this year's DEAFNESS is a separate DEAFNESS Directory which lists, for each state, sources of a great variety of services offered for the benefit of deaf people. This companion volume should prove useful to counselors and other professionals who are asked to assist in the rehabilitation of deaf persons.

FOREWORD

The Professional Rehabilitation Workers With The Adult Deaf is to be commended on the preparation and publication of DEAFNESS Annual IV which for the first time appears in two volumes. As in previous issues, a comprehensive report on research and training in the area of deafness is provided along with articles reflecting trends in deafness rehabilitation. In a separate volume, PRWAD has added a long-needed resource for vocational rehabilitation personnel and allied professionals, a director of programs and services available to deaf people.

While the production of the two volumes was the responsibility of the PRWAD under contract, the generous assistance of State and Federal agencies and of numerous individuals outside of government was indispensable to its completion. The Office of Deafness and Communicative Disorders was especially helpful in providing guidance.

The Rehabilitation Services Administration is pleased to continue to have a part in the publication of DEAFNESS Annual with in its growth indicates its good reception and need.

Andrew S. Adams

Dr. Andrew S. Adams
Commissioner, Rehabilitation
Services Administration

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PART I

CONTRIBUTED PAPERS

Section 1 - STATUS

WHAT'S THE MATTER, YOU DEAF OR SOMETHING?[*]

by Ronald Schiller

It was late afternoon; the first day of the school term was long over. Yet the small gray-haired teacher and the squirming nine-year-old pupil still sat facing each other, as they had for almost an hour, with their hands on each other's throats. He was pronouncing the other two letters of the word correctly, but still could not get the "k" sound. Suddenly the teacher thrust her fingers into the boy's mouth to the back of his throat, so that he gagged. "That's the right sound!" she signaled enthusiastically. "Do it again." But young Bruce Clary was outraged. Glaring at the woman through tear-filled eyes, he spelled out on his fingers: "I hate you, Miss Elliott!" and flung out of the room.

When he got home, both of his parents were waiting for him. It was an anxious moment, for they had moved to upstate New York at considerable financial sacrifice, so that their son could enter the famed Rochester School for the Deaf. "What did you learn today, Brucie?" asked his mother, mouthing her words carefully so that he could read her lips. "CAT!" he blurted out disgustedly, trying to indicate what a dismal failure the day had been. But instead of the commiseration he expected, his mother clapped her hands and shrieked with joy, his father picked him up and danced him around the room. It was the first intelligible word they had heard him utter in the three years since he had lost his hearing, and almost his life, after massive attacks of scarlet fever, measles and mastoiditis.

Although it happened 41 years ago, Bruce Clary thinks often of Sarah Elliott. "She was a gentle lady, with the patience of a saint and tenacity of a tiger," he recalls. "She made my life more miserable than I can describe. But she taught me to speak properly."

Sitting across from this ruggedly handsome, silver-haired man, in the modest president's office of the P&C Screw Machine Products plant in south Los Angeles, a stranger might not realize that he could not hear a word until thirteen years ago, when a series of delicate operations and a hearing aid restored partial hearing to his left ear (the right one was hopeless). Although he focuses on your mouth, rather than your eyes, when you talk to him, and silently repeats your words on his own lips so as to understand them better, his voice is well modulated and his articulation flawless.

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Equally remarkable is the business success Clary has achieved late in life. Starting out in a garage less than three years ago, with two machines and one helper, he now has 62 employees and 3½ million dollars in orders so that his 16 lathes must operate around the clock, seven days a week, to fill them all. The shriek of metal cutting metal in the big workshop is nerve-shattering. To make yourself heard to a hearing person you must stand an inch or two from him and shout into his ear. But the men on the machines are unaffected by the din, for — except for eight master machinists who serve as instructors and the secretaries needed to answer the phones — they too are all deaf, as are the dozen women, both black and white, who inspect the parts the machines turn out.

In fact, many of them are also "mute" in the sense that they are unable to utter a comprehensible sentence. Before coming to the machine shope most of them had been on welfare, unable to get jobs. Now launched on promising careers, at starting wages of $175 a week, they are able to support themselves and their families for the first time in their lives. "What Clary and those people with their first real jobs have accomplished would be outstanding by any measure," says Jack Wilburn, Chief of Domestic Trade in the U.S. Department of Commerce office in Los Angeles. "But when you consider that it has all been done by a group of deaf mutes, it must be rated as unbelievable."

Starting such an industry had been Clary's dream since youth. But not until he had recovered partial hearing — when he discovered that he could sit in conference with clients and accountants for the first time, and actually understand what was going on — did he believe he could do it. "My deaf friends and I have put our life's savings into the venture," he told me, "but we had to take the risk. Nobody else is helping us, so we've got to help each other."

This was my introduction to the world of silence, in which 2-3 million Americans spend their lives. Like most hearing people I had assumed that deafness was a far less serious disability than, say, blindness. Yet Helen Keller, who suffered from both, found deafness to be the much greater handicap. "When your ears stop functioning your world shrinks enormously," said a deaf teacher with whom I conversed on a typewriter. "You live with loneliness and frustration, ignored by society, unable to communicate with the police in emergencies, the doctor when ill, or to enjoy pleasures others take for granted. Watching movies or television is an empty experience, like reading a comic strip with the dialogue balloons all blank. You are insulted by strangers whose greetings or civil questions you can't understand. You try to ask for candy in a store, and are handed a box of aspirins. Eventually you shun the hearing world altogether, marry a deaf girl and associate only with the deaf. You become a stranger in your own land."

The teacher asked me not to use his name because, as he wrote, "the deaf don't want pity," a remark I was to hear many times during my researches. The request was pointless, because of all major physical disabilities, deafness arouses the least sympathy or concern in our society. Those afflicted receive none of the tax benefits afforded the blind and the crippled, no national fund drives are held on their behalf, they are protected by no antidiscrimination employment clauses, and when programs are devised to aid other disadvantaged groups, the deaf are usually overlooked. They are America's forgotten minority.

"I suppose it's because you can't see deafness," says Frederick Schreiber, executive secretary of the National Association for the Deaf. "It's only when you talk to us and we can't understand you, or when you hear the funny sounds most of us utter when we try to speak, that you realize we're different — and your first reaction is that we're either putting you on or we must be morons. It is no coincidence that the adjective 'dumb' has become synonymous with 'stupid.' "

Although the deaf are no longer locked away in asylums for the mentally retarded — at least, not intentionally — their shyness and ignorance of the world makes them easy marks for the unscrupulous. An inspector in Clary's plant, whom I interviewed through a sign language interpreter, told me that in her previous job as a seamstress she was required to pay the forelady a nickel for each glass of water she drew from the cooler. A male employee had pressed clothes in a tailor shop 10 to 12 hours a day for two years, before he discovered he was entitled to overtime wages. Unable to communicate with their hearing co-workers, they did not know they were being victimized.

"The deaf are always charged more for everything," is another common complaint. Recently a used car salesman induced one of Clary's apprentices to sign a $6,000 contract for a year-old Chevrolet — a deal which Bruce and his lawyer had canceled by threatening a suit for fraud. "Didn't you know that was too much to pay for a second-hand Chevy?" I asked the youth through the interpreter. "After all, you're a high school graduate. You could have found out what the car was worth by reading the newspaper ads." "I don't read well enough to understand the newspapers," was his abashed reply.

When I later related these incidents to Dr. John Schuchman, Dean of Gallaudet College for the Deaf in Washington, he was not surprised. "Although the intelligence range of the deaf is identical to that of the rest of the population, their reading levels are abysmally low," he told me. "The top 10 percent graduate from high school with the equivalent of an eighth-grade education, the next 30 percent with fifth-grade reading ability. Most of the rest are functionally illiterate, unable to read want ads or fill out employment applications, much less pass Civil Service exams or the written and oral tests most unions require for membership."

This is one reason the unemployment rate among the deaf is an estimated three to eight times higher than among the population at large, and why so many of normal, or above-average, intelligence end up in menial jobs or as door-to-door peddlers. But *under*employment is a worse problem, for even those who do find work commensurate with their abilities are too often shunted into dead-end jobs, unable to advance because of their lack of speech.

Of the few deaf men and women who have achieved important executive status in America or have earned Ph.D.'s, professorships or teaching positions, the majority are employed in organizations, colleges, schools and government departments, which serve the deaf. Those who have reached the tops of their professions on the "outside," as some deaf refer to the hearing world, are quite unusual, and Bruce Clary is one of that rare group.

To find out why the opportunities should be so limited, and educational levels so low, I visited schools for the deaf from California to New England. The experience was sobering, and often shocking. All of the major problems of the deaf, psychological and vocational, as well as educational, I learned, are rooted in their inability to communicate freely with the hearing.

A hearing infant's education begins almost at birth, when his parents chuck him under the chin and utter cooing sounds. The next five years constitute the most fruitful learning period of his life. By the time he enters school he has absorbed effortlessly, through his ears, 80 percent of the words he will use during the rest of his life, along with a functional understanding of grammar, syntax and sentence construction. His teacher shows him that there is a printed and written letter for every sound he utters, and that when the letters are put together in proper order they form familiar words. Thus he learns to read and write comparatively quickly.

The deaf child, by contrast, enters school with an average vocabulary of only ten words, no grammar, and is unable to associate alphabetical letters with sounds he cannot hear. It takes him years to acquire even rudimentary reading and writing skills — often with disastrous effects on the rest of his education.

How long after his birth a child loses his hearing is of incalculable importance. The educators were unimpressed when I told them of Clary's ability to converse normally. "Of course he could talk," they pointed out, "because he didn't become deaf until he was six. He had not only learned to speak, but he knew the sound of words and how to pronounce them, and the memory carried him through the rest of his life. All he needed after that was remedial instruction to keep him on course." In this respect Clary was one of the lucky 5 percent. Far more tragic is the plight of the 95 percent who became deaf before the age of 19 and who are "prelingually deaf," meaning that they were either born without hearing, or had lost the faculty before they had learned to speak properly. Left to their own devices they would become intellectual vegetables, for — as psychologists tell us — language is probably the most important single factor in life, the thing that keeps man psychologically alive, stimulating his curiosity, his ability to think and to grasp ideas.

By far the easiest and most natural language for the deaf to learn — the one most deaf people use when conversing with each other — is Sign Language, or "signing" as it is usually called. Brought to this country from France in the early 19th century, it consists of hand codes in relation to various positions around the body. The word for "man" or anything masculine, for example, is expressed by putting the fingers to the forehead, as though grasping the bill of a cap. The term for "woman" and things feminine is depicted by drawing the thumb along the cheek, where a bonnet string was once tied.

Most of the symbols have multiple meaning. Subtle differences in meaning depend on context and the free use of facial expression. "Love," "affection," "devotion" and the like, might all be expressed by rubbing one open hand in circular motion over the breast. "Hate" and its multiple synonyms are depicted by flinging the hands away from the face, with fingers flicking, in a motion of rejection. There is also a manual alphabet in which the letters are denoted by the position of the fingers on the hand. But it is normally employed in conversation only when there is no sign for the word the speaker desires to use.

Although Sign Language, often called Ameslan (American Sign Language), enables the deaf child to express himself almost as well as his hearing sibling — to those who understand it — it bears little structural resemblance to English, French, or any other known tongue. It is more like baby talk or a shorthand code, lacking articles, prefixes, suffixes and verb endings, which makes it difficult for a speaker to make himself understood when he tries to convert the symbols into English. To illustrate, here are some samples of notes written by deaf high school students, followed in parentheses by the thoughts they actually meant to express: "I library go finished" (I went to the library yesterday); "I window looked saw friend" (I saw my friend through the window); "Marry me tomorrow" (I am getting married tomorrow).

As an alternative, some schools now use a form of manual language called Signed English. It employs the same hand gestures, but puts the words in their English order, inserting articles and prepositions where needed, such as "a," "the," "by," and "for," as well as verb endings such as "ed" and "ing." Still a third technique called the "Rochester Method" after the school that first employed it, is to shun signs altogether and spell out every word on the fingers. Although it has many advantages, greatly enlarging the students' vocabularies, teaching them to write grammatically and spell correctly, its critics claim it is a tedious method of communication that produces such eye and brain fatigue when prolonged, that the viewers often become mesmerized, losing track of what's being said. A major drawback to all these visual languages, however, is that they give the deaf student no clue as to how the words are pronounced — which is particularly serious in the case of English, with its maddening inconsistencies. Thus one teenager I met, who spoke fairly well, pronounced the words, "juice" as "joo-ice" and "bough" to rhyme with "tough."

At this point we come to the squabble between the "oralist" and "manualist" teachers of the deaf. For many years Alexander Graham Bell, who was a famed teacher of the deaf, and who was married to a deaf wife, was a recognized leader in supporting oralism. Bell argued that in order to make their way in a hearing world the deaf *must* learn to communicate by reading lips and by speaking themselves. Furthermore, he reasoned, sign language is so much easier to learn that it should be discouraged, lest students resort to it, thus thwarting their attainment of spoken speech. Pupils were taught that to speak with one's hands was vulgar, and those who persisted in it were punished or expelled. (Nevertheless, as I observed, when there are no teachers around, or their backs are turned, the kids in these schools quickly revert to sign language, which they teach each other surreptitiously.)

One problem with the oral-only technique is that lipreading is a difficult art to acquire — the average deaf person can identify only 25 percent of the English syllables on the lips; the rest are invisible. "It's like trying to read a newspaper with words missing here and there," says Bruce Clary. "You grasp a little of the meaning, and have to guess at the rest. But if the speaker's mouth is hidden, or he mumbles, talks without moving his lips, or wears a bushy mustache, you don't know what's being said." He once got into an altercation with a passenger on a plane who appeared to be cursing him. It turned out that the man was not speaking at all, but was simply chewing gum with his mouth open. There is little correlation between lipreading and mental ability, educators say. Often the brightest students are the poorest lip-readers.

But to teach a prelingually deaf child to talk is infinitely more difficult — comparable, as one teacher put it, to "sitting in a soundproof booth trying to learn Japanese from an instructor on the other side of the window, who doesn't know a word of English." The student is equipped with hearing aids or earphones, to take advantage of whatever scraps of hearing he may retain. The amplification will not enable a profoundly deaf child to hear complete syllables, but it may permit him to detect vocal clicks, or pitch, or the rhythm of the instructor's voice, all of which are enormously helpful. Sounds originating behind the lips are demonstrated by having the pupil put his fingers on the teacher's throat or cheeks, or by staring into her mouth as she utters them, and later practicing them in a mirror. To make the "p" sound, which looks exactly like an "m" when formed, the teacher may hold a lighted match in front of the learner's mouth and tell him to blow it out with a puff as he parts his lips.

Despite all the devices and tricks that can be devised, the task demands indescribable patience on the part of both teacher and pupil. Words that the hearing can repeat effortlessly and without thought, the deaf must learn letter by letter, through trial and error, and an act of determined will, unable to correct themselves since they can't hear their own voices. Watching an instructor trying to teach a four-year-old girl to say "ball" was one of the most harrowing experiences I have known. After listening to the desperately straining child mispronounce the word perhaps forty times, in her small, strangled voice, I could bear no more and fled the room. "How much time do you and your class spend on a complicated word?" I asked another speech teacher. "A week, on the average," she replied.

How many prelingually deaf children can be taught to speak intelligibly depends on whom you ask — and what they mean by "intelligible." The speech of many of the students who were presented to me as "good talkers" was incomprehensible to my untrained ears. And of the score of deaf adults and youths I met, whose conversation I could understand without undue difficulty, only one was prelingually deaf, the rest had all lost their hearing after they had learned to speak.

The failure can be heartbreaking. "Why did you teach me to talk when nobody can understand me?" was the agonized question one teenager asked his parents, who had spent $7,000 yearly on private schools and tutoring. Even more shattering was the experience of a mother whose small son attended an oral school. As she kissed him and tucked him in for the night, he said something in sign language, whereupon she slapped his hands, as she had been instructed to do. The little boy burst into tears, rolled over and refused to look at her. Next day the mother visited the school, repeated her son's signs to the teacher and asked what they meant. What he had said was: "I love you."

Educators who oppose the oral-only method do *not* disparage hearing aids, lipreading and speech training. In fact, they insist on them, and almost always converse with the deaf, or teach a class, by speaking and expecting to be spoken back to. But they advocate "total communication," meaning that the speaker simultaneously signs or fingerspells with his hands held close at chest level or higher. Visual cues supplied by the hands and eyes reinforce each other. "The important thing is to give them a whole message, instead of a fragmented one," says Dr. Boyce Williams, deaf administrator in the Department of Health, Education and Welfare. "To insist on speech only, so much of which is not visible, is to deprive them of life."

Does the total method decrease the deaf's chances of learning to talk? Not in the opinion of Dean Schuchman of Gallaudet College. "We have about the same percentage of good lipreaders and talkers, as well as poor ones, from both types of schools. We use simultaneous communication in our courses because it would be impossible to teach college-level science, mathematics or philosophy, without it."

A bridge between the warring camps may exist in Cued Speech, a totally new communication method for the deaf developed by Dr. Orin Cornett of Gallaudet. It employs both oral speech and a radically different system of 12 hand signals, which in combination with the lips (but unintelligible alone) indicate the exact pronunciation of every syllable uttered. In wide use in Australia, and in about 50 schools in the United States, the method is claimed by teachers who employ it to enable students to understand spoken language far more easily, and to speak it more clearly, than any previous system. Best of all, say its enthusiasts, youngsters exposed consistently to Cued Speech from their early years enter school with grammatical skills and a vocabulary not much inferior to those of hearing children.

Other hopeful efforts to alleviate the problems of the deaf are beginning to emerge. Government agencies have begun to extend to them the vocational training and self-help assistance that are accorded to other disadvantaged minorities. Senator Inouye of Hawaii has introduced a bill that would grant them the same tax deductions the blind receive. The Department of Health, Education and Welfare distributes Hollywood movies in which the spoken dialogue is supplemented by visible captions in simple English. Television stations are now providing daily news programs for the deaf — San Francisco has a program which is narrated in sign language and Boston has one which uses captions — and manual interpreters have begun to appear in "Sesame Street" and other children's shows. Instruments attached to telephones, which print out messages on paper or electronic screens, now permit the deaf to communicate with each other at a distance.

Education of the deaf, too, is in the throes of a revolution. Miraculous computerized teaching machines, endowed with infinite patience, now offer instruction ranging from kindergarten lessons to problems in nuclear physics. Nearing completion is a speech device that would enable the deaf to see the sound of their words and halp them to correct their mistakes. Twenty-seven American colleges and universities provide non-hearing students with manual interpreters, who repeat the instructors' words with their hands and bodies, and notetakers to record lectures. And the National Technical Institute for the Deaf (NTID) in Rochester, New York, established by an act of Congress in 1965, now offers degrees in engineering, science, the visual arts and business to deaf students around the country, has had considerable success in placing its graduates in responsible positions in business, industry and government.

Perhaps the most dramatic example of the changing attitude is Bonnie Sloan, a profoundly deaf, 260 pound, 6-foot 5-inch defensive tackle, who last year (1973) won a berth with the St. Louis Football Cardinals. Sloan gets his signals in the huddle by reading the captain's lips. Audible changes on the line of scrimmage are relayed to him with hand signals by the man next to him. "He's one of the most dedicated players on the team," says his coach, "and he can't be drawn offside, since he has to watch the snap of the ball before he moves."

But whether Sloan can make it in professional football despite his handicap, or the deaf engineers, scientists and business executives from NTID can break through the sound barrier to management levels, remains to be seen. It takes understanding, and a good deal of repetition, for hearing people to work with the deaf.

One solution lies in the enterprise established by Bruce Clary. Under a management contract with the Department of Defense he has recently taken over a large production facility with over two hundred metal-working machines, where he eventually hopes to employ a thousand or more people. "Nine-tenths of them will be deaf, from janitors to vice presidents," says Clary. "We'll have deaf instructors to teach them their skills. We'll install printout devices and videophones so that executives and foremen can converse with each other at will, and they'll have hearing secretaries who know sign language to interpret outside calls for them. If we can do it, other can. Why shouldn't there be a hundred similar industries and companies across the nation, all managed and operated by the deaf?"

Indeed, why not?

ECONOMIC FACTORS IN DEAFNESS

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What is the cost of deafness — a simple question to ask, but one demanding a complex response? As one of its objectives, the National Census of the Deaf Population (NCDP) attempted to assess the *economic* impact of deafness. Such an assessment does not deny the intangible personal and social costs of this handicap; rather it directs attention to specific, readily measurable consequences which, in turn, provide indications of the more general correlates of deafness. Knowledge of the comparative employment and income findings for the deaf and general populations can contribute significantly to an understanding of deafness within our culture.

Sources of Data

The basic information for this article comes from the National Census of the Deaf Population (NCDP).[1] Following a two-year study to establish the size of the deaf population and to determine the location of a substantial number of prevocationally deaf persons — 98,448 of the estimated total of 410,000 — the NCDP conducted personal interviews in 1,500 households selected to provide a national sample of prevocationally deaf adults, 16 through 64 years of age. The interviewers were skilled in manual and oral communication. Each received intensive training specifically to prepare them for the NCDP.

Definitions

Two terms used here should be defined. By *deaf* is meant the inability to hear and understand speech. Since age at onset is critical in determining how loss of hearing affects daily living, an adjective is used to modify the term deaf. *Prevocationally* refers to the period up to, but not including, 19 years of age. Like all neologisms, prevocational may not be pleasing to some, but it serves the purpose of providing delineation that is meaningful to rehabilitation and education. Another modifier is *prelingual*, defined as deafness occurring before three years of age.

The corresponding prevalences for the deaf, the prevocationally deaf, and the prelingually deaf populations in the United States are shown in Table 1. The earlier the age at onset, the smaller the population. As obvious as this point may be when stated, it is often overlooked in discussions of the prevalence of deafness. The figures in Table 1 help place the subject in perspective. This article focuses on those persons whose deafness occurred prevocationally, including, of course, the prelingually deafened.

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[1] For a fuller description of the NCDP's methodology, see the preceding volume of *Deafness Annual*, Volume 3, 1973, pages 183-193. The complete report is now published by the National Association of the Deaf as *The Deaf Population of the United States* (Schein and Delk, 1974).

TABLE 1

PREVALENCE OF DEAFNESS OF VARYING AGES AT ONSET: UNITED STATES, 1971.

Age at Onset	Prevalence
All ages at onset	1,767,046
Prevocational	410,522
Prelingual	201,626

Source: Schein and Delk, 1974.

Labor Force Status and Unemployment

The proportion of prevocationally deaf people in the labor force is about the same as that for all persons. Of general population males, 80% are in the labor force compared to 83% of the NCDP's sample of deaf males. Similarly, 44% of general-population women are in the labor force and 49% of deaf women.

The concept of labor force comes from the U.S. Bureau of Labor Statistics. To be in the labor force, a person must be 16 years of age or older and have a job or, if not, be able to work and to have been actively seeking a job during the four weeks preceding the interview. Thus, students, retired persons, housewives, etc., are not in the labor force. This distinction is important in determining unemployment rates. In this context, a person who is not working is not necessarily unemployed. To be unemployed the individual must meet the labor-force criteria — willing and able to work.

The success with which prevocationally deaf persons compete for employment depends upon several factors. Sex is one. Male deaf persons are relatively more fortunate in job finding than are females. Indeed, deaf males in the NCDP sample have significantly lower unemployment rates than males in general. The reverse holds true for deaf females who reflect approximately 50% more unemployment than females in general. These data are summarized in Table 2.

Another contributing factor to determining unemployment rates is race. Nonwhite deaf persons do less well than do white deaf persons, whether compared with the general or the deaf populations. White deaf males have far less unemployment than white males in general, but nonwhite deaf males do worse than nonwhite males in general and far worse than white deaf males. Similarly, unemployment rates for nonwhite deaf females exceed those for white deaf females and nonwhite females in general.

Apparently, the minorities within the deaf population — females and nonwhites — fare less well in obtaining employment. These subgroups within the general population also do poorer, but deafness accentuates the differences between the sex and

TABLE 2

PERCENT DISTRIBUTION OF LABOR FORCE AND EMPLOYMENT STATUS OF PREVOCATIONALLY DEAF[a] AND GENERAL-POPULATION[b] RESPONDENTS 16 TO 64 YEARS OF AGE, BY RACE AND SEX: UNITED STATES, 1972.

		LABOR FORCE STATUS				EMPLOYMENT STATUS			
		NOT IN LABOR FORCE		IN LABOR FORCE		EMPLOYED		UNEMPLOYED	
Sex and Race	Total	Deaf	General	Deaf	General	Deaf	General	Deaf	General
Male	100.0	17.3	20.3	82.7	79.7	97.1	95.1	2.9	4.9
White	100.0	16.1	20.4	83.9	79.6	97.8	95.5	2.2	4.5
Nonwhite	100.0	28.2	26.3	71.8	73.7	89.6	91.1	10.4	8.9
Female	100.0	50.6	56.1	49.4	43.9	89.8	93.4	10.2	6.6
White	100.0	50.4	56.8	49.6	43.2	90.5	94.1	9.5	5.9
Nonwhite	100.0	52.3	51.3	47.7	48.7	83.5	88.7	16.5	11.3

[a] Schein and Delk, 1974

[b] Bureau of Labor Statistics, 1974

race groups. The present data support the findings about deaf persons in Metropolitan Washington, D.C., in 1963 (Schein, 1968).

Underemployment

Of nearly equal concern among experts on deafness is underemployment (Williams and Sussman, 1971). They realize that many deaf persons hold positions incompatible with their intelligence, skills and education. But how to quantify underemployment is a difficult problem. Generally, educational attainment provides a key. One must assume that individuals receive education within their potential to learn and that those who attain the same level of education have absorbed equal, or nearly equal, intellectual benefits from that experience. Neither assumption is strictly defensible, of course, but the highest grade completed can be useful as a rough index to underemployment. It is important, nonetheless, to recall that comparing occupational level to educational attainment is only one crude measure of underemployment.

TABLE 3

MEDIAN HIGHEST GRADE COMPLETED IN SCHOOL FOR PREVOCATIONALLY DEAF PERSONS 25 TO 64 YEARS OF AGE COMPARED TO THE GENERAL POPULATION, BY SEX: UNITED STATES, 1972.

	Median Highest Grade Completed in School	
Sex	**Deaf**	**General**
Both Sexes	11.1	12.1
Males	11.0	12.1
Females	11.1	12.1

Source: Schein and Delk, 1974

The average educational attainment of prevocationally deaf adults falls below that for the general population (Table 3). This finding is particularly distressing in view of the likelihood that academic achievement of deaf students differs from students in general, who have completed the same grade. Thus, a deaf graduate of a high school is not apt to perform as well academically as a nondeaf high-school graduate. Therefore, in the data reviewed below, the conclusions are based on intra-deaf comparisons as well as on those between the deaf and general populations.

Table 4 shows that the average educational attainment for the lowest occupational category — Service and Private Household Workers — exceeds that of Craftsmen. This finding certainly suggests that many in the former category are underemployed (8.2% had completed some postsecondary education.). The craftsmen include a large number of older deaf persons whose lack of formal education has been compensated for by on-the-job experience.

TABLE 4

PERCENT DISTRIBUTION OF PRINCIPAL OCCUPATIONS OF PREVOCATIONALLY DEAF PERSONS 16 TO 64 YEARS OF AGE BY HIGHEST GRADE COMPLETED: UNITED STATES, 1972.

		HIGHEST GRADE COMPLETED				
Principal Occupations	**Total**	**0-8**	**9-12**	**13-16**	**17+**	**Median**
All Occupations	100.0	23.2	62.6	10.5	3.7	10.3
Professional and Technical	100.0	2.0	33.7	38.6	25.7	14.0
Nonfarm Managers and Administrators	100.0	20.0	40.0	13.3	26.7	11.5
Sales	100.0	—	50.0	33.3	16.7	12.5
Clerical	100.0	11.1	73.1	13.5	2.3	10.6
Craftsmen	100.0	25.5	68.5	4.7	1.3	9.9
Operatives (Nontransit)	100.0	32.4	61.6	5.5	.5	9.6
Operatives (Transit)	100.0	23.1	61.5	15.4	—	10.2
Nonfarm Laborers	100.0	34.3	56.7	9.0	—	9.6
Farmers & Farm Managers	100.0	33.3	66.7	—	—	9.5
Farm Laborers	100.0	33.3	50.0	16.7	—	9.8
Service and Private Household Workers	100.0	19.4	72.4	8.2	—	10.2

Six of every 10 deaf persons who have completed one or more years of postsecondary education are employed as laborers. Forty-three % of those who have completed 13 or more years of education have jobs as clerks, operators (transit and nontransit), farm and nonfarm laborers, and service and household workers. These people may not all be underemployed, but, judged solely from their educational attainments, most would appear to be working in jobs requiring far less education than they have.

Future Employment Prospects

According to the U.S. Bureau of Labor Statistics, this country's labor force will contain 100 million workers by 1980 — an increase of more than 20% since 1968. Not only will the labor force expand, it will also change its composition. The demand for professional and technical personnel will increase 50%. Clerical and sales positions will increase by nearly 50%. Semiskilled jobs will increase less than 20%, but those for service workers will increase almost as much as for professional and technical workers. The proportion of jobs for craftsmen will decline slightly, and that for farm workers will decline markedly — continuing a long-time trend.

This means that deaf workers will need to alter their occupational habits to keep pace with the shifting demands. Sixty percent of male deaf adults in the NCDP sample were employed as craftsmen or semiskilled operators, while nearly half of the female deaf adults were similarly engaged. Only 8% of males and 11% of females were service workers, while only 9% of males and 8% of females held technical and professional positions. In short, most deaf workers are presently in occupations declining in demand or projected to undergo a small growth, while few are in the rapidly increasing categories. Unhappy as the present picture of unemployment and underemployment may be, the future looks worse — unless vigorous corrective action is taken soon.

Income

Deafness appears to impose a severe penalty on the affected individual's purse. The overall personal income of prevocationally deaf adults averages nearly 16 percent less than for the comparison group in the general population (Table 5). The figures shown are for personal, not family, income.

The pattern of lower average earnings for deaf adults is repeated in each of the subgroups. Black deaf males do proportionately worse than white deaf males, and both earn less than the corresponding groups in general. Deaf females earn less than general-population females, and both earn less than males. Nonwhite deaf and general-population females do not have average incomes as high as the white groups. The disproportionate burden falling upon the incomes of deaf females and deaf ethnic-minority members parallels that shown by the unemployment rates: economically, female and nonwhite persons appear to suffer more from deafness than do male and white persons.

Summary and Conclusions

The foregoing data convey some impression of the cost of deafness. Persons who are prevocationally deaf have greater difficulty obtaining employment. The jobs they get appear frequently to be at occupational levels below those warranted by their educational attainments. And these conditions are apt to be intensified by industrial

TABLE 5

MEDIAN PERSONAL INCOME FOR PREVOCATIONALLY DEAF AND GENERAL POPULATION EMPLOYED PERSONS 16 TO 64 YEARS OF AGE, BY SEX AND RACE: UNITED STATES, 1971.[a]

Sex/Race	Median Income[b] Deaf	 General
All Groups	$8,662	10,285
Males	9,263	10,930
White	9,450	11,143
Nonwhite	6,000	8,067
Females	4,146	5,114
White	4,347	5,842
Nonwhite	2,662	3,645

[a] The question asked in 1972 inquired about earnings during the preceding year.

[b] Total personal income for the calendar year 1971.

Source: Schein and Delk, 1974.

trends away from occupational groups that currently include large portions of the deaf labor force.

In terms of personal income, deafness strikes hard. Average earnings of prevocationally deaf adults fall about 16% below the general average. The average employed deaf adult had a median income of $8,662 in 1971 compared with $10,285 for the general population — a substantial difference.

With respect to employment and income, female deaf persons do less well than males. Deaf women have higher rates of unemployment and lower earnings than women in general. Race also accentuates the disparities between the deaf and general populations. Nonwhite deaf males and females fall behind those who are white in employment and income by amounts greater than the white-nonwhite disparities in the general population.

Again, it should be noted that these remarks concern only the economic impact of deafness, not its social and personal cost. Clearly, in economic terms, deafness exacts a high penalty. The additional expenses of necessary appliances, of extra travelling because the telephone cannot be used; of being unable to negotiate freely in the marketplace — these and other costs must be included in the cost of deafness, to obtain a true picture of its economic effect.

When the data in the preceding tables are reviewed, another generalization emerges: Economic debilitation is not a necessary consequence of deafness. Some prevocationally deaf people succeed in the marketplace. They hold good jobs consistent with their potential, enjoy excellent annual incomes, and generally exhibit no serious economic effects from their hearing impairment. The meaning of their success is clear: Deafness need not cause the economic hardship that it presently does for many people. While some individuals will not find work for reasons secondary to their deafness, or will fail to earn an adequate income, the majority of deaf persons should be able to attain higher levels of employment and earn at higher rates than they do at the present time.

Given the spotlight of continuing accurate information, the economic truths about deafness should begin to work to the advantage of deaf persons. Our society can and should reduce the heavy economic burden deaf persons carry. The deaf community needs a yearly audit of its position vis-a-vis the general population. Armed with that information, deaf leaders can persuade the appropriate governmental and private agencies to take the steps needed to improve conditions for all deaf persons.

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DEMOGRAPHIC PROFILE OF HEARING IMPAIRED STUDENTS

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INTRODUCTION

In this article we shall attempt to highlight some of the important characteristics of the hearing-impaired children and youth in the United States. Although we begin by discussing estimates of the number of such people in the general population, our focus will be on the minority who are receiving special educational services in settings devoted primarily to serving hearing-impaired youngsters. As such, the many profoundly and moderately hearing-impaired young individuals who are institutionalized (such as mentally retarded and severely emotionally disturbed persons) and those who are neither institutionalized nor receiving any special services related to their hearing impairment are largely excluded from our considerations.

After briefly considering the number of youngsters in each of the major types of settings in special education, we attempt to describe this group. Distributions related to their age and sex, ethnic background, degree of hearing loss, onset and cause of impairment, additional handicapping conditions, and achievement-test results and I.Q. scores are highlighted. We then turn our attention to the student who has con- his or her secondary education, describing first some characteristics of school leavers and concluding with a discussion of students in post-secondary special programs.

All data used in this article derive from recent or forthcoming statistical reports. These reports contain extensive statements qualifying the data. While in the present context we attempt to keep these methodological considerations in the background as much as possible, it should be emphasized that the data are most appropriately used when these considerations are taken into account in interpreting them.

HEARING LOSS IN THE GENERAL POPULATION

Figures based on a complete enumeration of the general U.S. population with various degrees of hearing loss do not exist. The governmental agency responsible for producing national statistics on most of the impairments and health problems of individuals in this country is the National Center for Health Statistics (NCHS). The work of the Center in this area is mainly based on probability samples in households of the nation and excludes institutionalized persons and those in the Armed Forces. Thus, our knowledge of the distribution of hearing loss in the general population is based on statistical estimates rather than in census figures.

Data on hearing ability, along with many other types of potentially handicapping conditions, are usually collected by NCHS on an annual basis. During certain years, the focus has been on specific conditions and impairments, with much more information being collected on these topics than is usually the case. Such an emphasis was placed on hearing impairments in 1962-63 and again in 1971.[1]

The report on the information collected during 1971 is now being written and should be published before the end of 1974. NCHS and the author of that report, Augustine Gentile, have kindly shared some of the preliminary findings with the authors of this article. It is these data which serve as the basis of the figures considered later in this paper.

Two considerations should be kept in mind relative to the figures used in this article. First, there is no generally agreed upon definition of such terms as "deafness" and "hard-of-hearing". Thus, slight variations in specifying the working concept used in data collection may cause wide fluctuations in estimates of the number of people with a given degree of hearing loss. Second, as noted at the beginning of this section, statistics on hearing impairment in the general population are based on samples which produce, along with the final estimate and its associated confidence limits, a host of limitations and qualifications that depend on the particular methodology utilized to produce the estimate.

In line with the promise made in the Introduction to this article, we have put aside, as much as possible, considerations related to problems of definition and of methodology of data collection. We have attempted simply to highlight some of the major findings of the 1971 household interview survey of the National Center for Health Statistics as they relate to the prevalence of hearing problems among the non-institutionalized young people in the United States.

Exclusive of the Armed Forces and the institutionalized population, 13,228,000 people in the United States, three years of age and over, were estimated in 1971 to have trouble hearing in one or both ears. Table 1 presents the numbers and percen-

TABLE 1

NUMBER AND PERCENT DISTRIBUTION OF PERSONS BETWEEN THREE AND TWENTY-FOUR YEARS OF AGE HAVING TROUBLE HEARING IN ONE OR BOTH EARS: UNITED STATES, 1971.

HEARING STATUS	NUMBER	PERCENT
All Persons With a Hearing Problem In One or Both Ears	**1,628,000**	**100.0**
Persons With a Bilateral Hearing Problem	608,000	37.3
Persons With a Hearing Problem in Only One Ear	885,000	54.4
Cannot Be Classified	135,000	8.3

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[1] It was the impetus of the National Census of Deaf People, a project conducted by the Natonal Association of the Deaf, that led to their focus on hearing impairments during the 1971 round of national data collection by NCHS.

tages of young people between three and 24 years of age with a bilateral hearing loss, and of those with a hearing problem in only one ear. We focus on this distinction because ordinarily persons involved in providing special educational and rehabilitative services to hearing-impaired persons seldom deal with students or clients who have normal hearing in one ear. As may be noted, approximately 600,000 of these young people have a bilateral hearing loss.[2]

TABLE 2

NUMBER AND PERCENT DISTRIBUTION OF PERSONS BETWEEN THREE AND TWENTY-FOUR YEARS OF AGE WITH A BILATERAL HEARING PROBLEM BY DEGREE OF LOSS: UNITED STATES, 1971.

HEARING STATUS	NUMBER	PERCENT
All Degrees of Bilateral Hearing Loss*	**600,000**	**100.0**
Cannot Hear and Understand Any Speech	32,000	5.3
Can Only Hear and Understand Words Shouted In the Better Ear	32,000	5.3
Can Hear and Understand Words Shouted Across a Room	148,000	24.7
Can Hear and Understand Words Spoken in a Normal Manner, but Not a Whisper	388,000	64.7

* Excludes 8,000 cases which cannot be classified.

Table 2 shows, however, that almost two-thirds of these 600,000 individuals have only a slight hearing problem — i.e. they are unable to understand whispered dialogue but can hear and understand words spoken in a normal manner across a quiet room. It is from among the 212,000 individuals with a more serious hearing loss that professionals in special education and rehabilitation tend to draw the students and clients they meet in their daily work. Of these, 64,000 individuals can hear and understand no speech or only words shouted into their better ear, while 148,000 cannot hear and understand normal conversation, but can hear and understand words shouted to them from across a quiet room.[3]

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[2] In producing the estimates used in this article we have excluded the cases where an ambiguity exists concerning whether or not a person should be classified as having a significant hearing loss. As such, these estimates tend to be minimum estimates. Also, it should be noted that the levels of hearing determined by the NCHS are for unaided hearing.

[3] For a detailed discussion of methodological considerations related to the hearing scale utilized by NCHS, see Jerome D. Schein, Augustine Gentile, Kenneth W. Haase, *Development and Evaluation of an Expanded Hearing Loss Scale Questionnaire*, National Center for Health Statistics, Public Health Service Publication No. 1000 — Series 2 — No. 37.

STUDENTS IN SPECIAL EDUCATIONAL PROGRAMS FOR HEARING IMPAIRED INDIVIDUALS

The fact that hearing impairments are often associated with other types of handicaps means that choices must be made regarding the most appropriate type of special program or setting when a child cannot attend a regular school. Statistics are uneven and generally very poor with regard to the number of children with a hearing impairment who are in specialized settings, such as institutions for the mentally retarded and for emotionally disturbed youngsters. This lack of reliable information holds both for the youngsters who are and for those who are not receiving special services related to their hearing impairment in these institutions.

Fairly precise data exist on the students who attend special educational programs directed primarily to hearing impairment. During the 1972-73 school year, approximately 21,000 students were attending residential schools for the deaf; 9,000 students were attending day schools; and 24,000 were receiving special educational services ranging from full-time classes to resource rooms and itinerant programs.[4] These 54,000 students were receiving various types of special services in 76 residential schools, 105 day schools, and in specialized programs in almost 3,000 regular schools and clinics.

It should be noted, however, that about 18% of the students in residential schools are day students. Thus, approximately 68% of the 54,000 students in settings directed primarily to serving hearing-impaired youngsters are day students, and only 32% are residential students.

In the previous section we noted that there are estimated to be 212,000 individuals in the general population between the ages of three and 24 years with a serious bilateral hearing loss. The bulk of the 54,000 students in special educational programs are between the ages of five and 18 years. This age group in the general population with a serious hearing loss is estimated to total about 140,000 individuals. This suggests that there are approximately 86,000 youngsters in the country with significant hearing losses who are not enrolled in special programs primarily devoted to hearing-impaired persons. Some members of this group are to be found in other kinds of specialized settings; others are functioning in regular hearing settings with little or no specialized help. There are no precise figures, however, either on these groups, or on the individuals who fall into either of them.

Although these figures ar only estimates based on sample surveys, they do suggest that only a minority of hearing-impaired youngsters are in the type of setting out of which most data and research findings on young "deaf" or "hard-of-hearing" people emerge. As such, any generalizations about this group of people based on these findings should be treated with caution. This is especially true for hard-of-hearing individuals, who most probably constitute the overwhelming majority of this group.

BASIC CHARACTERISTICS OF HEARING IMPAIRED STUDENTS RECEIVING SPECIAL EDUCATIONAL SERVICES

The Annual Survey of Hearing-Impaired Children and Youth yearly updates basic information on about 80% of the 54,000 hearing-impaired students receiving special educational services. In this section we highlight some of the basic characteristics of this group, using the data collected on 44,000 students during the 1972-73 school year to project the number of students in the entire population having specific characteristics. However, the caveat stated at the end of the previous section should be kept in mind before generalizations based on these findings are made regarding **all** young people with a significant hearing loss.

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[4] Again, this is a minimum figure. The true figure may be as much as 5% higher, with students under the age of six accounting for most of the missing cases.

Age and Sex

The age and sex distributions of students enrolled in special educational programs are presented in Table 3 below — 46% female and 54% male. When sex is related to age, the ratio of males to females remains the same as for the total group except for students 17 years old and over. Here the percentage of males increases slightly.

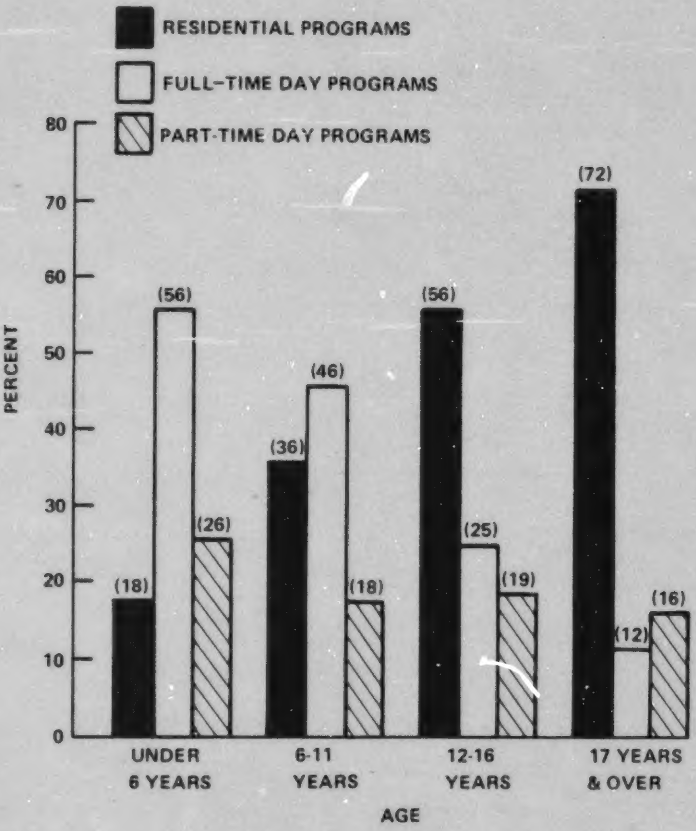

FIGURE 1

PERCENT DISTRIBUTION OF STUDENTS ENROLLED IN SPECIAL EDUCATIONAL PROGRAMS FOR THE HEARING IMPAIRED BY TYPE OF PROGRAM ACCORDING TO AGE: UNITED STATES, 1972-73.

TABLE 3

NUMBER AND PERCENT DISTRIBUTION OF STUDENTS ENROLLED IN SPECIAL EDUCATIONAL PROGRAMS FOR THE HEARING IMPAIRED ACCORDING TO AGE AND SEX: UNITED STATES, 1972-73.

AGE	BOTH SEXES		MALE		FEMALE	
	Number	Percent	Number	Percent	Number	Percent
All Ages	54,000	100.0	29,231	54.1	24,769	45.9
Under 6 Years	5,968	100.0	3,208	53.7	2,760	46.3
6 — 11 Years	24,987	100.0	13,361	53.5	11,626	46.5
12 — 16 Years	17,233	100.0	9,398	54.5	7,835	45.5
17 Years & Over	5.812	100.0	3,264	56.2	2,548	43.9

Figure 1 presents the type of program the students are enrolled in according to age. The types are classified as residential programs, full-time day programs, and part-time day programs. Those in this last category include part-time day classes, itinerant programs, resource rooms, speech and hearing clinics, and parent/child programs. As can be seen, children under the age of 12 predominantly attend full-time day programs, whereas those 12 years of age and over, by and large, attend residential programs.

Available data do not allow us to state precisely why this is so. Many residential programs retain students with special problems until a later age and many day programs to "graduate" their students into regular school settings; these facts may account for a major share of this difference. Since, in its data collection during the next school year, the Annual Survey will emphasize the question of entering and leaving students, national data related to this question will be available by the summer of 1975.

Ethnic Origin

Figure 2 represents the distribution of hearing impaired students in special educational programs by region according to ethnic origin. As seen here, the largest proportion of non-whites is found in the South while the smallest proportion of non-whites is located in the North Central Region. The proportion of the non-white groups in special education in all four regions is similar to the proportions in the gen-

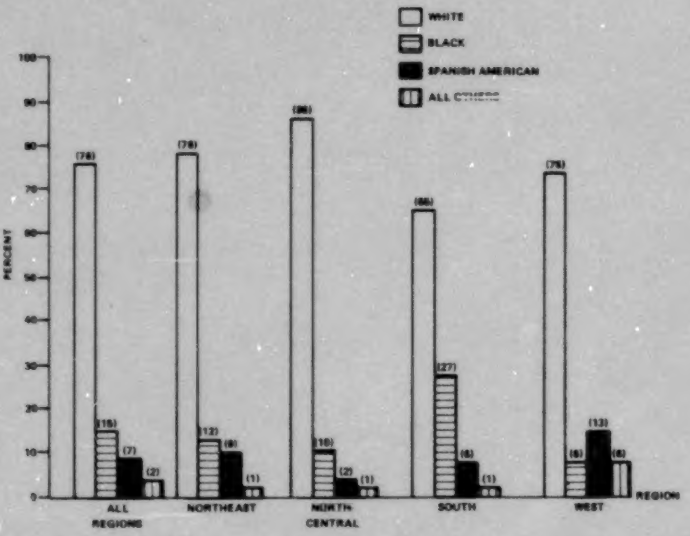

FIGURE 2

PERCENT DISTRIBUTION OF STUDENTS ENROLLED IN SPECIAL EDUCATIONAL PROGRAMS FOR THE HEARING IMPAIRED BY ETHNIC ORIGIN ACCORDING TO REGION: UNITED STATES, 1972-73.*

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* In this and all following Figures and Tables, percentages may not total to 100% due to rounding.

TABLE 4

NUMBER AND PERCENT DISTRIBUTION OF STUDENTS ENROLLED IN SPECIAL EDUCATIONAL PROGRAMS FOR THE HEARING IMPAIRED BY ETHNIC ORIGIN ACCORDING TO TYPE OF PROGRAM: UNITED STATES, 1972-73.

ETHNIC ORIGIN	TYPE OF PROGRAM							
	ALL PROGRAMS		RESIDENTIAL		FULL-TIME DAY		PART-TIME DAY	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
All Origins	**54,000**	**100.0**	**21,000**	**100.0**	**21,514**	**100.0**	**11,486**	**100.0**
White	41,153	76.2	16,647	79.3	15,094	70.2	9,412	81.9
Black	8,171	15.1	3,086	14.7	3,607	16.8	1,478	12.9
Spanish-American	3,934	7.3	911	4.3	2,514	11.7	509	4.4
All Others	742	1.4	356	1.7	299	1.4	87	.8

eral population, except for the South where black students are overrepresented in special education for hearing-impaired students.

Overall, about one-fourth of the hearing-impaired students come from homes with a linguistic environment differing from that of the white majority. This should be an important consideration in any evaluation of the overall linguistic performance of deaf students.

Table 4 indicates that the largest percentage of ethnic minorities is to be found in full-time day programs (30%, contrasted with about 20% in residential and part-time day programs). A significant part of this difference is accounted for by the large number of Spanish-American students in the full-time day programs.

The percentages cited above are based on data received on about 38,000 of the 44,000 students reported to the Annual Survey. However, research now being conducted indicates that the 6,000 students for whom data on this item were not received were not randomly distributed. It appears that some schools tended to leave this item blank for students coming from minority backgrounds. While this analysis is not yet complete, it seems at this time that the actual percentage of white students may be a few percentage points lower than is indicated by the reported data, with slight increases in the overall percentages of each of the minority groups. These differences, however, should not seriously affect the relationships among the ethnic groups derived from the reported data.

Hearing Loss

Data from the Annual Survey relative to hearing loss are collected in two ways. The student's dB level is requested at 500, 1000, and 2000 Hz in both ears. If, how-

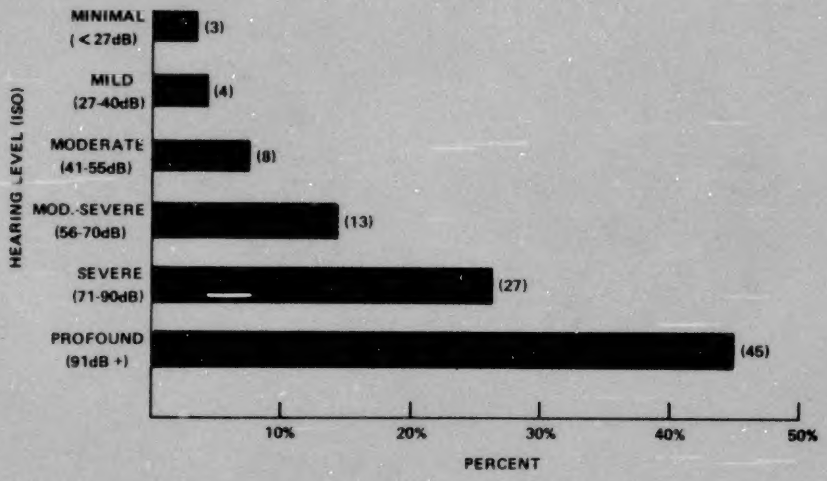

FIGURE 3

PERCENT DISTRIBUTION OF STUDENTS ENROLLED IN SPECIAL EDUCATIONAL PROGRAMS FOR THE HEARING IMPAIRED ACCORDING TO DEGREE OF HEARING LOSS: UNITED STATES, 1972-73.

ever, this information is not complete for one or both ears, an estimate of the hearing loss is made based on a six-point scale which ranges from "within normal limits" (less than 27 dB ISO)* to "profound" (90 dB ISO and above). Exclusive of those students for whom no degree of hearing loss was reported (7%), complete audiograms were received on 84% of the remaining students, and estimates based on the scale (i.e., without complete audiological data) for 16% of them.

In Figures 3 and 4, the students with complete audiological data (84%) have been categorized together with the estimate group according to the six point scale. Figure 3 shows the distribution of students in special educational programs by hearing loss.

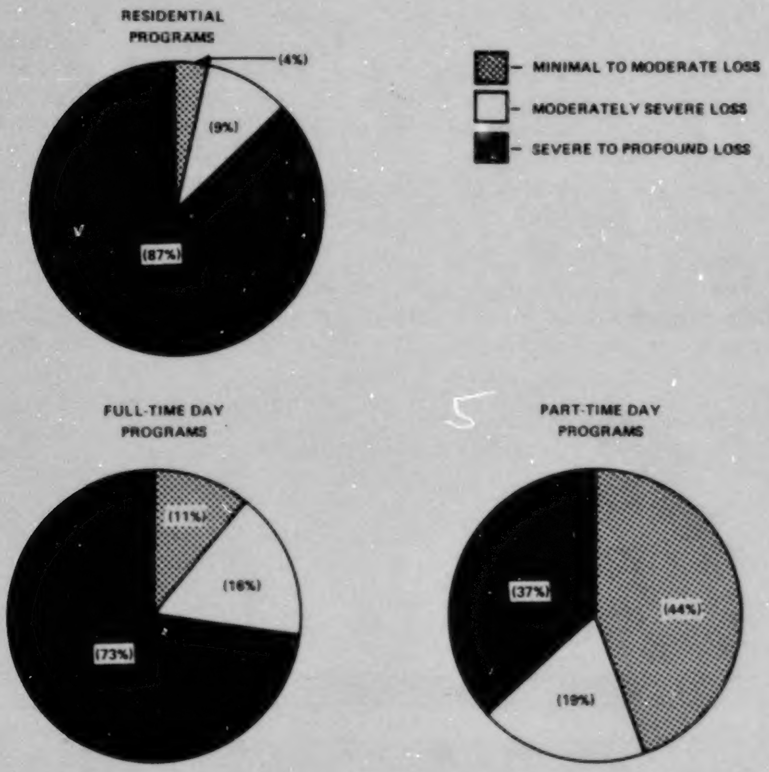

FIGURE 4

PERCENT DISTRIBUTION OF STUDENTS ENROLLED IN SPECIAL EDUCATIONAL PROGRAMS FOR THE HEARING IMPAIRED BY TYPE OF PROGRAM ACCORDING TO DEGREE OF HEARING LOSS: UNITED STATES, 1972-73.

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* ISO = International Standards Organization

Figure 4 gives a percentage breakdown for hearing loss levels by type of program, with the unknown cases distributed in proportion to the known cases. While the vast majority of students enrolled in special educational programs have severe to profound hearing losses, the percentages of these students vary greatly by type of program, ranging from 87% for residential programs to 37% for part-time day programs.

Onset and Cause

Table 5 illustrates the distribution of students according to age at onset of hearing loss. A significant majority (74.4%) of the students on whom data were reported showed an onset of loss at birth. Because a loss which occurs after three years of age would probably be detected, it is reasonable to assume that a high proportion of those reporting an unknown onset lost their hearing prior to the age of three. Since the distribution of age at onset in Table 5 is based on the assumption that the unknown cases are distributed like the known cases, it is highly probable that, rather than the 7.1% shown, less than 5% of the students receiving special educational services lost their hearing at three years of age or over. Thus, more than 95% of these students lost their hearing prior to the development of language, a very significant factor in educational considerations for these children.

TABLE 5

NUMBER AND PERCENT DISTRIBUTION OF STUDENTS ENROLLED IN SPECIAL EDUCATIONAL PROGRAMS FOR THE HEARING IMPAIRED ACCORDING TO AGE AT ONSET OF HEARING LOSS: UNITED STATES, 1972-73.

AGE AT ONSET	STUDENTS	
	Number	Percent
All Onsets	**54,000**	**100.0**
At Birth	40,200	74.4
Under 1 Year	3,788	7.0
1 Year	3,781	7.0
2 Years	2,377	4.4
3 Years & Over	3,854	7.1

Relative to the cause of hearing loss, specific causes were reported for only 51% of the students; 5% of these reported more than one cause. No cause was reported for 49% of the students.

Among the reported prenatal causes, maternal rubella accounted for 43% of the known causes. The large percentage of rubella cases reflects the rubella epidemic of 1958-59 and the more severe epidemic in 1964-65. The influence of these epidemics is illustrated in Figure 5, which shows a distribution of the students by age. The upper line represents the age distribution for all students while the lower line represents the distribution when students for whom rubella was reported as the cause of hearing loss

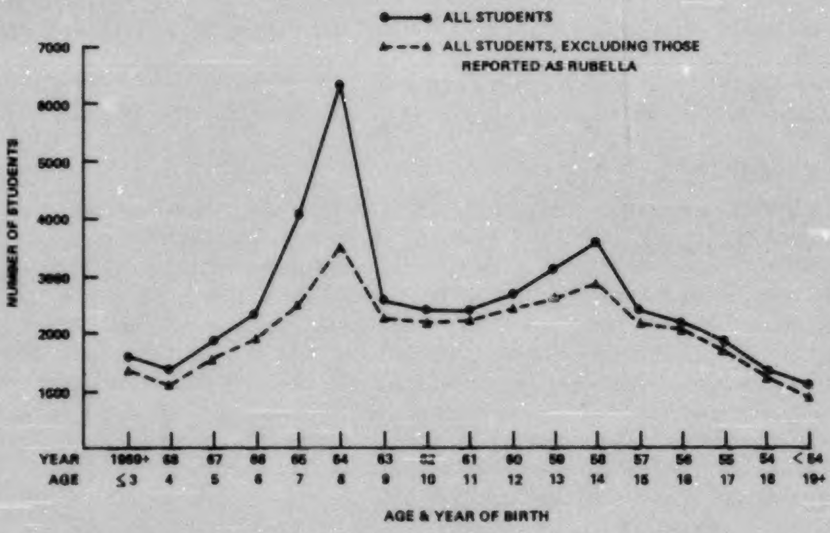

FIGURE 5

DISTRIBUTION BY AGE AND YEAR OF BIRTH OF ALL STUDENTS IN SPECIAL EDUCATIONAL PROGRAMS FOR THE HEARING IMPAIRED AND FOR THOSE STUDENTS FOR WHOM RUBELLA WAS NOT REPORTED AS A CAUSE OF HEARING LOSS: UNITED STATES, 1972-73.

are excluded.[5] Other frequently reported prenatal causes are heredity (12%) and prematurity (13%).

However, recent studies by geneticists working in the field of deafness indicate that heredity accounts for a much greater proportion of those born deaf than the reported figures indicate. In analyzing data collected by the Annual Survey, Dr. Walter Nance of the Department of Medical Genetics at the University of Indiana has concluded that most of the cases of unknown cause should be attributed to the many forms of recessive genetic factors. He and other geneticists estimate that approximately half of all congenital deafness is attributable to hereditary factors.

If this estimate is taken into consideration, the true situation is probably better reflected in Part B[6] of Figure 6 than in Part A. Although, on the basis of reported data, maternal rubella appears to be the major cause of congenital deafness, in reality the many forms of hereditary hearing loss probably account for the largest proportion of these cases.

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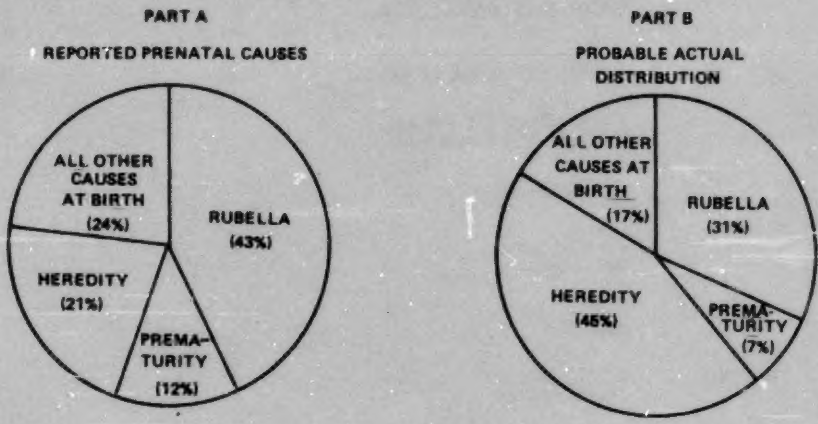
[5] The peaks in the curve for "all students excluding those reported as Rubella" undoubtedly reflect the fact that a number of unknowns and blanks for reported cause are students who lost their hearing because of Rubella. On the other hand, it should also be noted that a small number of reported Rubella cases might be so diagnosed because they were born with a hearing loss at the time of the Rubella epidemics.

[6] We use 45% as a rough estimate based on averaging the 50% generally used by geneticists and the lower between 30 and 40% projected by Gentile and McCarthy in *Reported Causes of Hearing Loss for Hearing Impaired Students*, p. 16.



PART A

REPORTED PRENATAL CAUSES

PART B

PROBABLE ACTUAL DISTRIBUTION

FIGURE 6

PERCENT DISTRIBUTION OF STUDENTS REPORTING A CAUSE OF HEARING LOSS AT BIRTH ENROLLED IN SPECIAL EDUCATIONAL PROGRAMS FOR THE HEARING IMPAIRED ACCORDING TO CAUSE OF HEARING LOSS: UNITED STATES, 1972-73.

Most frequently reported among the postnatal causes was meningitis (35%), with measles (13%), high fever (15%), and otitis media (11%) following in that order. As high fever is frequently associated with meningitis and measles, there may be some overlap in reporting these three causes.

Additional Handicapping Conditions

The criterion used for reporting additional handicapping conditions to the Survey was whether the handicap was "educationally significant." Based on this criterion, 67% of the students were reported as having no educationally significant handicapping condition, and 33% were reported as having one or more such conditions.[7] As may be seen in Figure 7, those most frequently reported were emotional/behavioral problems, mental retardation, and visual problems.

When the type of educational program is considered, no major differences emerge with regard to the percentages of students having no additional handicapping conditions and those having one or more additional such conditions The main difference (34% of students in non-residential and 32% in residential programs reported to have one or more conditions) may be the result of slightly different judgements of what is "educationally significant" in the two settings.

When an additional handicapping condition is related to the cause of hearing loss, certain patterns emerge which indicate that presence of an additional condi-

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[7] It should be emphasized that these classifications are based on judgements made by teachers and other personnel at programs which supply data to the Annual Survey. As such, there is a strong subjective component in classifying the students, especially with regard to such categories as "mentally retarded" and "emotional-behavioral problems."

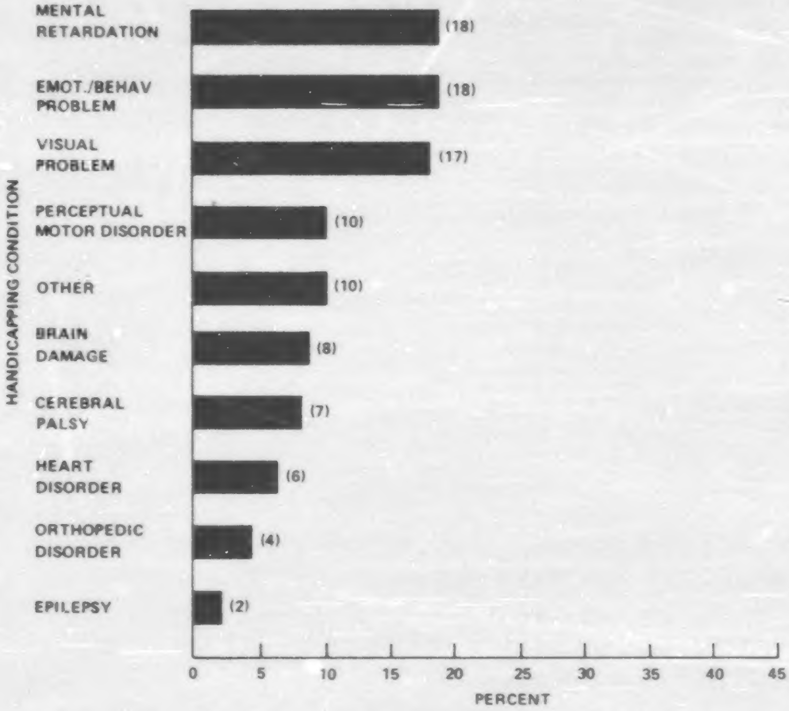

FIGURE 7

PERCENT DISTRIBUTION OF ADDITIONAL HANDICAPPING CONDITIONS OF MULTIPLY HANDICAPPED STUDENTS ENROLLED IN SPECIAL EDUCATIONAL PROGRAMS FOR THE HEARING IMPAIRED: UNITED STATES, 1972-73.

tion(s) is closely associated with particular causes. This is especially true in the case of prenatal causes such as prematurity, maternal rubella, complications of pregnancy, trauma at birth, and Rh incompatibility. In contrast to this general association of certain prenatal causes and additional handicapping conditions, however, a very low proportion of students whose reported cause was heredity also had an additional condition (See Figure 8).

Achievement Test Results and I.Q. Scores

No recent national data exist on the performance of hearing-impaired students on achievement tests. The Office of Demographic Studies is now producing normative data on a revised edition of the 1973 Stanford Achievement Test on a national sample of hearing impaired students. However, results from this testing program will not be available until the fall of 1974.

Data do exist, however, for a testing program conducted in the spring of 1971. Figure 9 shows the results for almost 17,000 hearing-impaired students from the ages of eight to 19 years on the Paragraph Meaning and Arithmetic Computation subtests of the Stanford Achievement Test. While the results for both subtests show a linear increase in grade equivalent scores with age, this increase is far greater for Arithmetic Computation.

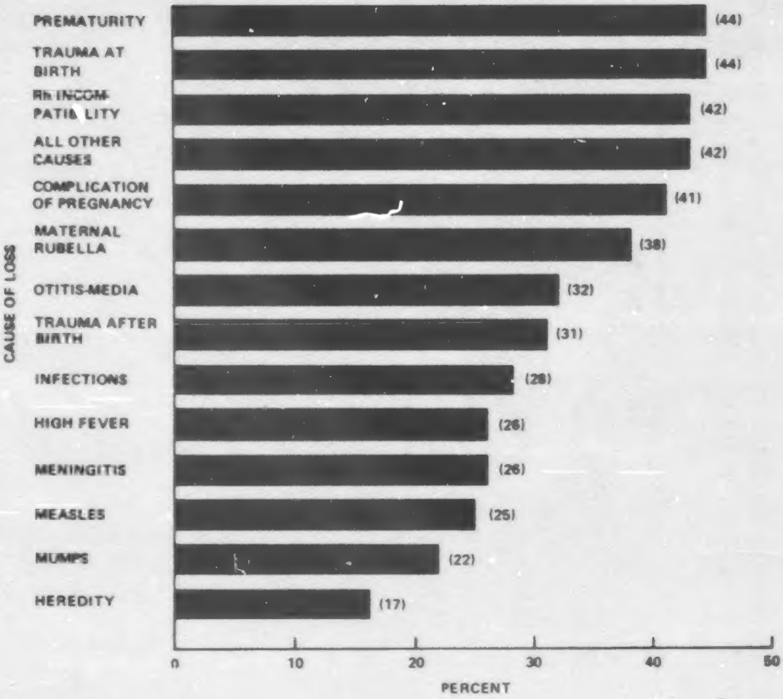

FIGURE 8

PERCENTAGE OF STUDENTS WITH AT LEAST ONE ADDITIONAL HANDICAPPING CONDITION ENROLLED IN SPECIAL EDUCATIONAL PROGRAMS FOR THE HEARING IMPAIRED ACCORDING TO REPORTED CAUSE OF HEARING LOSS: UNITED STATES, 1972-73.

While it may be discouraging to note that the average grade equivalent scores never attain the 5th grade level for Paragraph Meaning and the 7th grade for Arithmetic Computation, it should be emphasized that these results are based on tests developed for children with normal hearing who attend regular schools. Furthermore, test scores of hearing-impaired youngsters who have never received (or are no longer receiving) special educational services and who are fully integrated into regular classrooms are not included. Finally, the scores do include those of many students (about 30%) with additional handicapping conditions, including approximately 5% reported to be "mentally retarded."

That these scores do not reflect the potential of hearing-impaired youngsters is indicated by other data collected during the same year. Non-verbal I.Q. scores were obtained on more than 21,000 students. As is indicated in Table 6, the mean I.Q. of those hearing-impaired students without additional handicapping conditions was 100.1 (with a standard deviation of 16.9).

TABLE 6

REPORTED MEAN NON-VERBAL IQ SCORES OF STUDENTS ENROLLED IN SPECIAL EDUCATIONAL PROGRAMS FOR THE HEARING IMPAIRED ACCORDING TO ADDITIONAL HANDICAPPING CONDITIONS: UNITED STATES, 1970-71.

ADDITIONAL HANDICAPPING CONDITION	STUDENTS		MEAN NON-VERBAL IQ	STANDARD DEVIATION
	Number	Percent		
All Students	**20,159**	**100.0**	**95.6**	—
Students With No Additional Handicapping Condition	13,522	67.1	100.1	16.9
Students With at Least One Additional Handicapping Condition	6,637	32.9	86.5	20.2

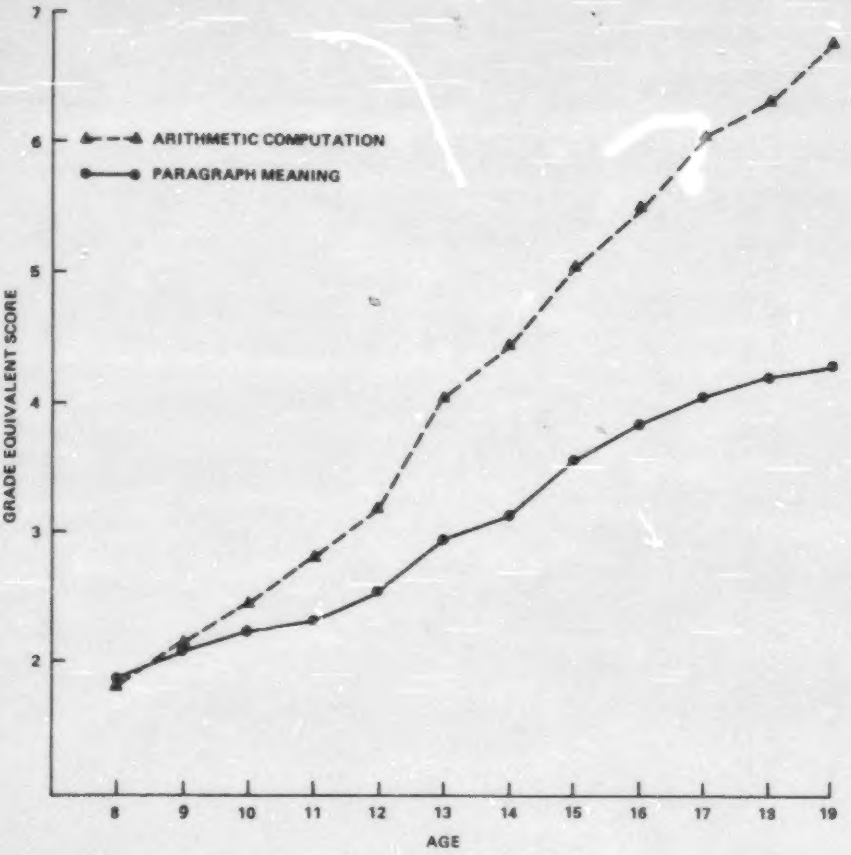

FIGURE 9

MEAN GRADE EQUIVALENT SCORES FOR ALL BATTERIES OF THE PARAGRAPH MEANING AND ARITHMETIC COMPUTATION SUB-TESTS BY AGE FROM THE ANNUAL SURVEY ACHIEVEMENT TESTING PROGRAM: UNITED STATES, 1971.

An interesting aspect of the non-verbal I.Q. data on hearing-impaired students in special educational programs is the slight negative correlation between age and I.Q. scores (r = -0.09), indicating a lower I.Q. for the older students. This negative correlation may be accounted for largely by two factors: First, the more successful younger students who have received special services move into a regular school setting; and second, the older students in residential programs are likely to be those with the most severe learning problems.

SCHOOL LEAVER

During the 1971-72 school year data were collected on approximately 9,000 students who had left their particular programs since the previous school year. About 3,500 of them were 16 years of age or over. The circumstances under which the stu-

TABLE 7

NUMBER AND MEAN NON-VERBAL I.Q. SCORE OF LEAVING STUDENTS, AGE SIXTEEN AND OVER, ENROLLED IN SPECIAL EDUCATIONAL PROGRAMS FOR THE HEARING IMPAIRED BY THE CONDITION UNDER WHICH THE STUDENT TERMINATED SCHOOL: UNITED STATES, 1971-72.

I.Q. DATA	All Conditions	CONDITION UNDER WHICH STUDENTS 16 YEARS OF AGE LEFT SCHOOL								
		GRADUATED								
		Academic	Vocational	Certificate	Type of Degree Unknown	Transfer	Drop-Outs	Dis-missed	Deceased	Data not Available
All Students	3,522	1,102	462	280	275	515	385	217	5	281
Number Tested	1,541	513	241	133	118	201	175	89	—	71
Mean Non-Verbal I.Q.	95	104	94	88	102	89	87	86	—	87

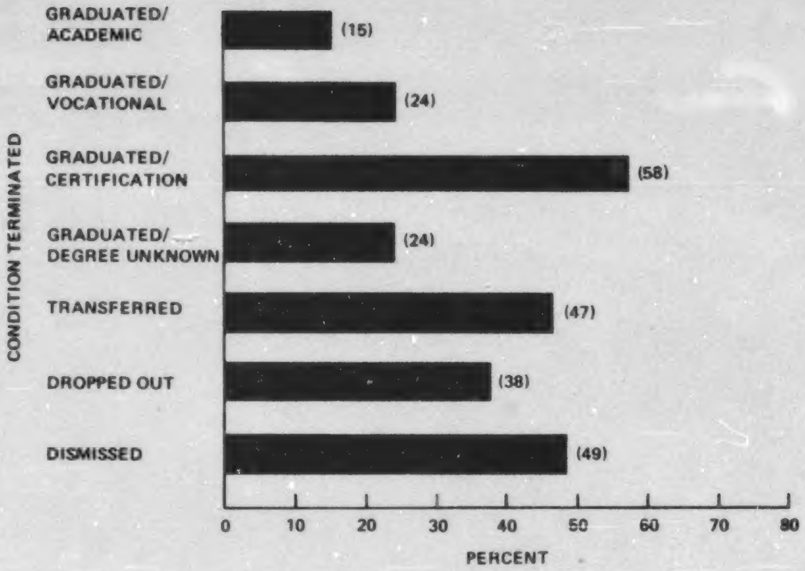

FIGURE 10

PERCENT DISTRIBUTION OF SCHOOL LEAVERS 16 YEARS OF AGE AND OVER WITH AN ADDITIONAL HANDICAPPING CONDITION BY THE CONDITION UNDER WHICH THE STUDENT TERMINATED SCHOOL: UNITED STATES, 1971-72.

dents left, along with the mean I.Q. score of the students associated with each of these circumstances, are shown in Table 7.

The mean non-verbal I.Q. for all groups was 95, with those receiving academic diplomas showing the highest mean score (104) and those who were dismissed or dropped out showing the lowest mean score (86).

When the circumstances under which these older students left their respective programs are related to additional handicapping conditions, some interesting relationships emerge. As a group, 31% of the "school leavers" had an additional handicapping condition, a figure which approximates the 33% of students with at least one additional handicapping condition in the total population. However, as shown in Figure 10, among the students who graduate with academic diplomas, the percentage with an additional condition is dramatically lower. This figure contrasts sharply with those graduating with a certification of attendance who have about four times as high a frequency of additional conditions (58%). Those who transferred, dropped out, and were dismissed also had a significantly higher frequency of additional handicaps than did the population of students attending special educational programs.

TABLE 8

PERCENT DISTRIBUTION OF HEARING—IMPAIRED PERSONS ATTENDING SPECIAL POST-SECONDARY PROGRAMS ACCORDING TO REGION OF HOME STATE OF RESIDENCE: UNITED STATES, 1972-73.

REGIONS	ALL PROGRAMS	GALLAUDET	NTID	ALL OTHERS
ALL REGIONS*	100.0	100.0	100.0	100.0
NORTHEAST	16.3	16.0	45.2	5.1
NORTH CENTRAL	28.5	27.2	34.7	27.3
SOUTH	20.2	27.7	11.9	16.2
WEST	29.8	18.6	7.6	49.7
NON-U.S.	5.2	10.5	.6	1.7

* Excludes those for whom this information was not reported.

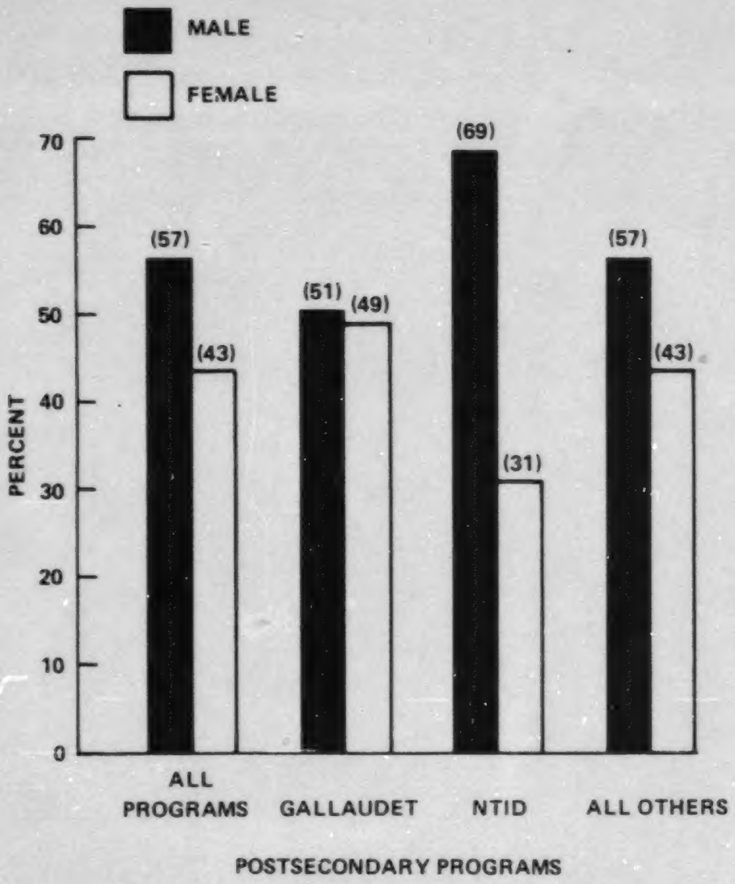

FIGURE 11

PERCENT DISTRIBUTION OF HEARING-IMPAIRED PERSONS ATTENDING POST-SECONDARY PROGRAMS, BY SEX: UNITED STATES, 1972-73.

STUDENTS IN SPECIAL POST-SECONDARY PROGRAMS

During the 1972-73 school year, 2,235 students attended 37 post-secondary programs for hearing-impaired persons. These figures do not include students attending graduate programs, nor do they include hearing-impaired students in post-secondary programs not providing special personnel and services for the students. The Annual Survey collected data on 2,138 of these 2,235 students; 882 of them were enrolled at Gallaudet College, 354 at the National Technical Institute for the Deaf (NTID) and 902 at 27 other smaller programs. In many of these latter programs the emphasis is on vocational/technical education. Geographically, the 29 programs that supplied data to the Survey were distributed as follows: 12 in the West, 8 in the North Central region, seven in the South, and two in the Northeast. They were scattered in 16 states and the District of Columbia, and ranged in size from five to 882 students.

TABLE 9

NUMBER AND PERCENT DISTRIBUTION OF HEARING—IMPAIRED PERSONS ATTENDING SPECIAL POST-SECONDARY PROGRAMS BY AGE: UNITED STATES, 1972-73.

AGE	ALL PROGRAMS		GALLAUDET		NTID		ALL OTHERS	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
ALL AGES	2,138	100.0	882	100.0	354	100.0	902	100.0
Under 19 Years	152	7.1	58	6.6	21	5.9	73	8.1
19 Years	320	15.0	114	12.9	55	15.5	151	16.7
20 Years	404	18.9	139	15.8	88	24.9	177	19.6
21 Years	361	16.9	152	17.2	71	20.1	138	15.3
22 Years	228	10.7	112	12.7	43	12.1	73	8.1
23 Years	180	8.4	105	11.9	32	9.0	43	4.8
24 Years	104	4.9	65	7.4	16	4.5	23	2.5
25 Years & Over	294	13.8	108	12.2	28	7.9	158	17.5
Not Reported	95	4.4	29	3.3	—	—	66	7.3

The regional distribution of these students by home state is shown in Table 8. Almost half of those at NTID came from the Northeast, while half of those at the smaller programs came from the West. (This latter high percentage reflects the large number of programs in California.) Ten percent of the undergraduates at Gallaudet College were foreign students. In relation to the enrollment in all programs, students from the South were over-represented at Gallaudet (28%), while students from the West were under-represented there (19%).

Figure 11 indicates an over-representation of male students at NTID and of female students at Gallaudet in relation to the sex distribution for all types of programs. Table 9 shows the age distribution of the students by program. The modal age of the Gallaudet students (21) is one year older than for the students at NTID and for the other 27 programs combined. These other programs have a greater percentage of students under 18 and over 25 years of age than does Gallaudet or NTID.

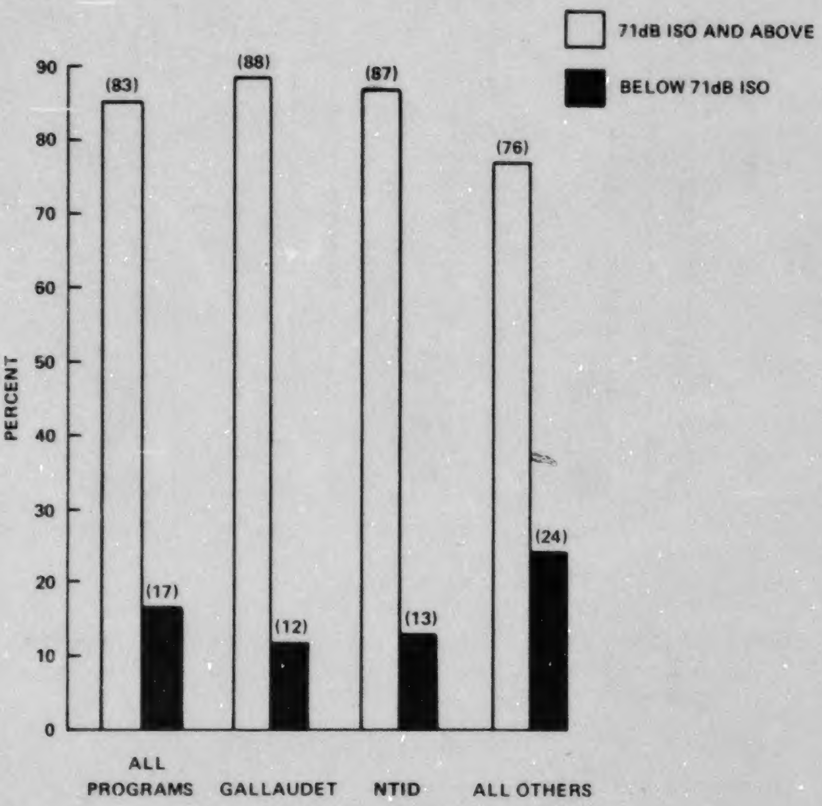

FIGURE 12

PERCENT DISTRIBUTION OF HEARING-IMPAIRED PERSONS ATTENDING SPECIAL POST-SECONDARY PROGRAMS BY LEVEL OF HEARING LOSS: UNITED STATES, 1972-73.

There are only slight differences among the programs with regard to degree of hearing loss (Figure 12) and age at onset (Figure 13).

As may be noted, the percentage of students with a serious degree of hearing loss is smaller in the 27 other programs than at Gallaudet or NTID. On the other hand, there is a slightly smaller percentage of students at Gallaudet with a prenatal hearing loss than at the other schools.

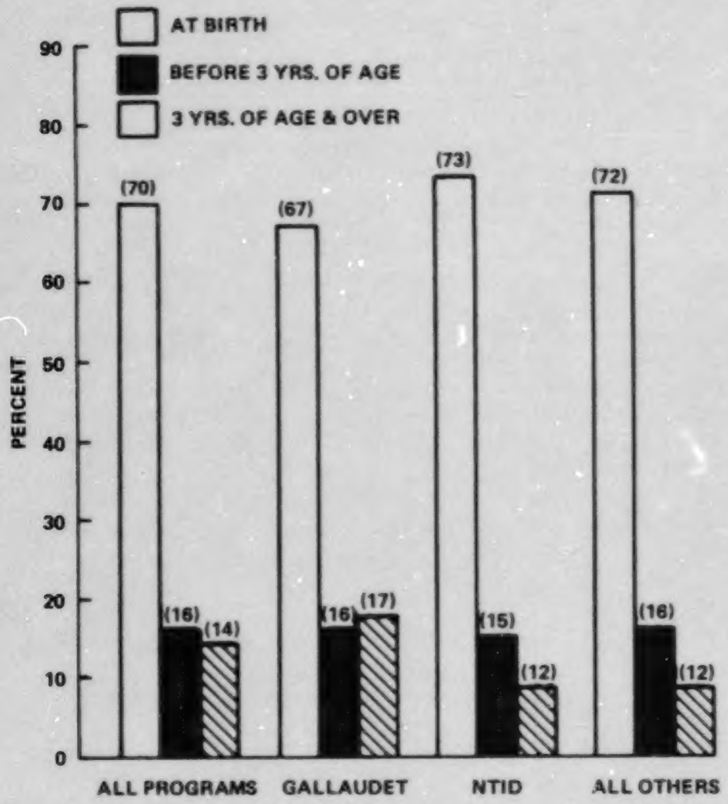

FIGURE 13

PERCENT DISTRIBUTION OF HEARING-IMPAIRED PERSONS ATTENDING SPECIAL POST-SECONDARY PROGRAMS BY AGE AT ONSET OF HEARING LOSS: UNITED STATES, 1972-73.

CONCLUSION

The shaded portion in Figure 14 represents the students who have been described in the previous three sections of this discussion. These include about 56,000 persons. If we recall our earlier estimate of 212,000 young persons between the ages of three and 24 who have a serious bilateral hearing loss, questions arise about the estimated 156,000 young people not included in the shaded portion of the figure, i.e., those not receiving special educational services.

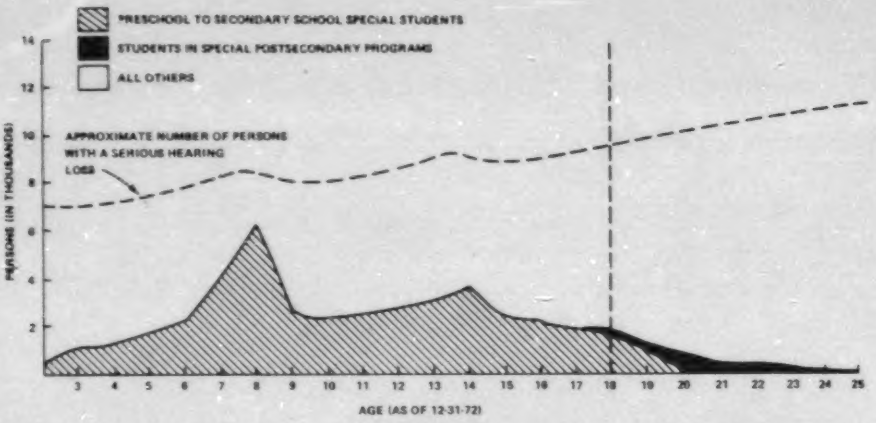

FIGURE 14

DISTRIBUTION OF YOUNGSTERS WITH A SERIOUS HEARING LOSS ACCORDING TO ATTENDANCE AT SPECIAL EDUCATIONAL PROGRAMS FOR THE HEARING IMPAIRED: UNITED STATES, 1972-73.

However, any statement to the effect that 156,000 deaf persons in this age group need special services would be unwarranted for at least two reasons. First, it should be re-emphasized that this figure is based on an estimate which has a Standard Error of the Mean of about 15,000. As such, the true prevalence may be as low as 126,000 (or as high as 186,000) at the 95% level of confidence. Second, it should be recalled that a large proportion of these people (148,000 of the 212,000) are expected to be able to hear and understand shouted speech from across a quiet room. As such, it is highly probable that a significant proportion of this group would be classified by most as "hard-of-hearing" and not "deaf".

Recognizing these reservations, what can we say about these estimated 156,000 young persons? Undoubtedly a significant number of those over 17 (the dotted line in Figure 14) are gainfully employed. Others are in institutions, unemployed, or leading a marginal existence at their parents' homes. While precise and extensive data on these groups do not exist, the forthcoming results of the National Census of Deaf People should clarify this situation significantly.

As Figure 14 indicates, less than half of the group under the age of 18 (53,000) are in special educational programs devoted primarily to serving hearing-impaired young persons. Most of those in the other group who are not receiving such services probably fall into three major categories: (1) those in institutional settings who may or may not be receiving special services related to their hearing loss; (2) those who are neither institutionalized nor integrated into hearing society; and finally, (3) those who have made varying degrees of adjustment to living in the hearing world and who have either never received special services or are no longer receiving them.

Information regarding the prevalence and characteristics of the people in these three categories is scant. Thus, any generalizations about deaf and hard-of-hearing persons which do not include these people in the sample should be highly qualified. But, far more important than the status of general statements about hearing impairments, is the fact that at least some of these people are in dire need of recognition and help.

APPENDIX: SOURCES

Aside from the NCHS data discussed in the second section, all data used in this article were collected by the Office of Demographic Studies at Gallaudet College. For a far more detailed presentation, the following publications may be consulted:

Series D

No. 9 Academic Achievement Test Results of a National Testing Program for Hearing Impaired Students — United States: Spring 1971.

No. 10 Characteristics of Hearing Impaired Students by Hearing Status — United States: Spring 1971.

No. 12 Reported Causes of Hearing Loss for Hearing Impaired Students — United States: 1970-71.

No. 14 Additional Handicapping Conditions Among Hearing Impaired Students — United States, 1971-72.

No. 15 Characteristics of Hearing Impaired Students by Ethnic Background — United States, 1972-73 (forthcoming).

No. 16 Nonverbal Intelligence Test Scores of 22,000 Hearing Impaired Students: Patterns of Test Usage, Score Distributions, and Relationships with Demographic Characteristics — United States, 1970-71 (forthcoming).

Section 2 - NEEDS

TRAINING NEEDS OF REHABILITATIVE PERSONNEL SERVING DEAF PERSONS

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National and regional conferences of professionals in the field of deafness consistently report a need for comprehensive services for deaf persons. Inevitably recommendations from conferences refer to the need for professional personnel in the field — most frequently and specifically, rehabilitative personnel.

Since the National Workshop on Improved Opportunities for Deaf Persons held in Knoxville, Tennessee in 1964, increasing emphasis has been placed on secondary training for deaf persons in order to meet the demands of current employment opportunities. The 1968 Amendments to the Vocational Education Act have made it possible to increase the number of training programs for deaf persons. On the other hand, lack of qualified counseling personnel remains an obstacle in the successful rehabilitation of many capable deaf individuals.

A number of workshops and articles written by deaf and hearing professionals have repeatedly pointed to rehabilitation services as being inadequate. The unemployment rate among the deaf population is significantly higher than that in the general population. Authorities in the field have repeatedly pointed to the high rate of underemployment among those deaf persons who are working as one of the most serious problems confronting them. Yet occupational studies (Kronenberg, 1966) Crammate, 1968) show deaf persons capable of performing successfully in a wide area of occupations from unskilled levels all the way through professional levels.

In efforts aimed toward solving the unemployment and underemployment problems among the deaf population a variety of disciplines including special education, vocational rehabilitation, and vocational education have recently been combined to effect cooperative efforts for the purpose of providing needed services (Caldwell, 1972). Some results of these efforts may be seen in the rapid growth of vocational training programs across the nation (Norris, 1972). In this survey, however, rehabilitation personnel involved in casework with deaf clients indicated a need for additional training in placement, counseling, communication skills, and utilizing evaluation reports. They suggested little need for additional skills in choosing occupational training resources, utilizing community resources, audiology and case load management. On the basis that training is useless without placement, the rehabilitation personnel seemed to feel their greatest weakness is for skills related to job placement (and, more specifically, techniques of job development) for deaf clients.

Literature in the field of deafness yields very little information on the personnel who provide rehabilitation services for deaf persons. For example, the level of training and background of rehabilitation personnel is relatively unknown. Although training programs at several universities have been established, the number of personnel employed by state rehabilitation agencies far exceeds the number of students completing these programs and entering or returning to state agency employment. Finally, many state vocational rehabilitation agencies have only recently employed personnel with specific responsibility for serving deaf persons.

The purposes of the study reported here were: (a) To identify rehabilitation personnel in the field who spend a major part of their time in services with deaf people; (b) to determine their training and experience; and (c) to identify areas in which they felt a need for further training. It is hoped the results of the study will be helpful to programs involved in training rehabilitation personnel, and may be useful for suggesting advanced training seminars based upon expressed needs indicated by field personnel.

In order to conduct the survey, the first problem was to identify vocational rehabilitation personnel involved in services for deaf clients in state agencies. Although many states now employ personnel who have a major responsibility to serve deaf clients, some states utilize general caseload counselors. These are concerned with a variety of disability groups with the resulting possibility that they serve only a few deaf clients per year. Since accurate data were not available on the current policies and practices of the states, an initial questionnaire (see Appendix I) was mailed to administrators of State Vocational Rehabilitation Agencies during January of 1973. It went to Directors of 50 state agencies and of the District of Columbia, Puerto Rico, Virgin Islands, and Guam. Information requested from stage agencies included:

1. A list of names and addresses of personnel employed by the Agency with a major responsibility (50% or more of work time) for rehabilitative services to deaf persons.
2. Names and addresses of State Coordinators or Consultants responsible for services for deaf persons.
3. Predicted need for personnel to serve deaf clients during the 1973-74 fiscal year.

Responses were received from 49 states and the District of Columbia, Puerto Rico, Virgin Islands, and Guam. The only state not responding was New York.

The results of the survey yielded a total of 266 names and addresses of personnel in the specified categories (see the *Deaf American*, March 1973). Among these individuals were a number of evaluators, facility personnel, and counselor aides; the largest number, however, were field counselors. Among the states responding, 41 reported having a state-level person in the area of deafness with consultant and/or supervisory responsibility.

Respondents reported a need for 86 additional state rehabilitation agency personnel for the 1973-74 fiscal year as follows:

Coordinator or Supervisor	3
Counselor with case load primarily of deaf clients	47

Counselor with deaf and other disability groups	23
Evaluator	3
Other	10

The second step of the study was begun in February, 1973. Two areas of investigation were pursued: Background data on respondents — age, employment setting, educational level, training in the area of deafness, work experience, and percentage of time spent in work with deaf clients; and training needs — interest in additional training, most convenient time of the year for training, length of time for training, and specific area of training needed. Nine categories were listed, with room allowed for additional areas. (See Appendix II.)

A total of 144 responses were received in response to 266 questionnaires mailed. Analysis of the data yielded the following information, broken down by percentage:

Age Range of Respondents

20-30 years	38.2%
30-40 years	31.2%
40 years +	30.6%

Employment Settings of Respondents

Field Counselor with case load	61.4%
Rehabilitation facility or training Center	7.6%
Supervisory responsibility	16.3%
Other	14.7%

Educational Background

Some College	7.6%
Bachelors	11.8%
Some Graduate Study	26.4%
Master's Degree	42.2%
Beyond Master's	9.0%

Training in the Area of Deafness (expressed in percentage of total number of responses)

Inservice or on the job	82.6%
One month or more formal orientation program	49.4%
Bachelor's degree with specialization in deafness	8.7%
Master's degree with specialization in deafness	13.0%

Specific training courses related to deafness

Have had a basic course in Audiology	44.5%
Have had a basic course in education and/or psychology of deafness	56.5%
Have had some training in manual communication skills	75.5%

Although the agency had indicated that the personnel listed had a major deaf responsibility with 50% or more time spent in service with deaf persons, the respondents reported the following amount of time spent in rehabilitation of deaf people:

Respondents spending less than 25% of time in rehabilitation of deaf people	6.3%
Respondents spending between 25% and 50% of time in rehabilitation of deaf people	15.3%
Respondents spending between 50% and 75% of time in rehabilitation of deaf people	63.1%

The average period of work experience reported in the area of deafness was 4.2 years. The average length of work experience reported in vocational rehabilitation was 4.5 years.

Of the 144 respondents, 94% indicated an interest in and need for additional rehabilitation skills, while only 6% indicated they do not feel a need for additional training. Of those who desire additional training, most felt a session of at least two weeks would be needed. The most convenient time of the year was reported as June, September, October, and February, respectively, in descending order.

In summary, the respondents appeared predominantly to be relatively young field counselors with education beyond the Bachelor's level (over 89% reporting a degree or beyond). Most have had one month or more of formal training in the area of deafness. Less than approximately one fourth of the respondents have either a bachelor's or master's degree with specialization in deafness. Half of those employed indicate they have had course work in audiology, education, and/or psychology of deafness. Three-fourths of the respondents reported some training in communication skills. Sixty-three percent of the respondents indicated that they spend half or more of their time in services with deaf clients. Ninety-four percent of the respondents indicate a need for additional training on a short-term basis.

The questionnaire regarding areas of training included nine general categories with descriptions of each, along with space for the respondent to write in additional areas if he wished. (See Appendix II.) Only 4% of the respondents added areas of needed training. Respondents were asked to select five areas in which they felt they had an additional training need, and to rank their five choices in order of priority.

Not all respondents indicated more than one area in which they felt a need. However, the following five areas were ranked highest, with some respondents ranking two areas as the areas of greatest need (which accounts for the total percentage exceeding 100%):

	1st	*2nd*
Techniques of placement with deaf persons	24.9%	15.7%
Communication Skills	23.1%	8.6%
Counseling techniques with deaf persons	22.8%	11.4%
Techniques of counseling with severely handicapped deaf persons	21.1%	13.5%
Interpretation of evaluation and testing of deaf persons	19.1%	13.0%

Second choices were indicated by fewer than two-thirds of the respondents. What the reason for this may have been can only be conjecture. However, if the first and second ranking are combined and placed in order of priority, the most definitive need, according to the respondents, is in the area of techniques of placement. The combined percentage is 40.6 when first and second choices are combined. The other four areas listed above tended to be clustered with a combined ranking ranging from 31.7% for communication skill needs to 34.6% for counseling skills with severely handicapped persons.

The result is perhaps even more significant when the percentage totals for techniques of counseling with severely handicapped deaf persons (34.6%) is combined with counseling techniques with deaf persons (34.2%). Here, the combined percentage total for ranking of first and second needs is 68.8%. This impressive figure may very well suggest that a large percentage of vocational rehabilitation counselors working with deaf clients feel inadequate in the most crucial area of counseling skills.

Placement is a significant problem and, it would appear, counseling skills may be a problem of equal if not greater magnitude. The results also seem to reflect a feeling on the part of the respondents that evaluative data and communication skills development are areas in which there is a need for additional training. At the other end of the spectrum, the areas given lowest priority were: community services, occupational training resources, audiology, and caseload management.

Although areas of training need varied among the personnel, over 90% of the respondents expressed some need for additional training in order to improve service to the deaf client. Approximately nine out of ten indicate a need for training in application of evaluation data.

It may be concluded that among those counselors with major responsibility for serving deaf clients there is tremendous need for improved skills with which to accomplish the ultimate purpose of initiating rehabilitation service, and job placement. It is also obvious that counselors feel their skills are generally inadequate for reaching this ultimate goal. The results of this study suggest a need for: (a) improved communicative skills, which are absolutely necessary for developing (b) techniques of counseling with deaf clients, which, in turn, are necessary in order (c) to evaluate the deaf client. It appears that personnel tend to describe their ultimate training needs as related to job placement. Needs that are more fundamental, however, are skill in communication and in counseling.

A survey of superintendents of residential schools for the deaf conducted by David W. Lacy (1973) reported a substantial need for training vocational counselors. Superintendents suggested a training curriculum to include communicative skills, counseling techniques, psychological appraisal, and psychology of deafness. All of these training needs are confirmed by respondents to the survey being reported here, all of whom are rehabilitation personnel serving deaf people.

Both rehabilitation and school for the deaf administrators report a need for additional trained personnel. Rehabilitation personnel also indicate a need for further training in basic rehabilitation skills with deaf clients. Yet current government financial support for university training programs is diminishing. The Social and Rehabilitation Services stated its position by declaring that all financial support to existing training programs was to be terminated by August 1974.

In summary, this study suggests that substantial gains have been made toward training personnel to serve deaf clients. Still, 90 percent of the respondents expressed a need for more training. The population of rehabilitation counselors serving deaf clients is relatively young, well educated, and appears to have excellent potential for utilizing training resources. Most of the training concerned with deafness which was reported was either in-service or short-term. Only half of the professional personnel have had training in audiology or a basic course concerned with the psychological aspects of deafness — both of which are areas fundamental to effective rehabilitation of the hearing impaired individual. Although 75% have had *some* training in manual communication, they indicate a need for improved skills. Personnel working in rehabilitation of the deaf report a need for additional skills in job placement, counseling techniques, communication, and evaluation.

Withdrawal of federal support for training will affect the number of professional personnel. Although universities may continue for a period of time to offer courses in the area of deafness rehabilitation, the number of students in such programs may be reduced because of lack of stipend support. Lack of sufficient numbers of students for courses may discourage offerings in many university or college programs. Ultimately, the relatively meager services afforded deaf clients seeking vocational rehabilitation services will inevitably become even fewer and less available unless present trends can be reversed.

APPENDIX I

AREAS OF TRAINING NEED FOR REHABILITATION PERSONNEL SERVING DEAF PERSONS

The purpose of this survey is to determine the need for additional short-term training programs for upgrading skills of persons engaged in rehabilitation work with deaf people. The questionnaire below aims at specific areas in which you may feel the need for better understanding. Please read over the questionnaire and number in order of priority (1=highest need, 2=second highest need and so forth through the 5 most needed areas of additional training). You are encouraged to answer based on your own personal need for further information. Subheadings are some of the topics that may be included in the main topic.

A. _____ Management of the deaf case load.
  Utilization of community resources
  Securing referrals
  Administration and supervision of services
  Utilizing case work aid

B. _____ Evaluation and testing deaf persons.
  Interpretation of psychological tests
  Aptitude testing
  Techniques of personal adjustment

C. _____ Counseling techniques with deaf persons.
  Principles of counseling
  Role and function of the counselor

D. _____ Techniques of counseling with severely handicapped deaf persons.
  Behavioral disorders
  Mentally and/or educationally retarded
  Deaf-Blind and other physical impairments
  Facilities for services

E. _____ Occupation training resources.
  College programs for deaf persons
  Vocational programs
  Rehabilitation facility programs

F. _____ Community resources.
  Function of government and private agencies
  Utilization of interpreting service

G.______Techniques of placement with deaf persons.
Job development
Labor market information
Employer relationship
Information regarding present employment of deaf persons

H.______Communication skills.
Sign Language (non-English)
Interpreting (receptive and expressive)

I.______ Basic fundamentals of audiology.
Audiology and otological tehcniques
Hearing aids

J.______ Other, explain ____

Return to: The University of Tennessee
Department of Special Education
and Rehabilitation
Knoxville, Tennessee 37916

APPENDIX II

BACKGROUND DATA ON RESPONDENT:

1. Age range: ____ 20-30, _____ 30-40, ____ 40 or above.

2. Type of employment: ______ Field counselor with case load
______ Rehab. facility or training program
______ Supervisory responsibility
______ Other ______________________________

3. Educational level (check highest level completed)

_____Some college
_____Bachelor's Degree
_____Some graduate study, Area ________
_____Master's Degree, Major ___________
_____Beyond Master's Major ___________, Degree ____________

4. Training in the area of deafness (check all applicable)

_____ Inservice or on the job
_____One month or more formal orientation program
_____Bachelor's Degree concerned with deafness
_____ Master's Degree concerned with deafness

5. Have you had a basic course in the following areas?

________ Audiology
________ Psychology and/or Education of the Deaf
________ Communication Skills

6. Work experience: _______ Approximate number of years of work experience in the area of deafness
_______ Approximate number of years of work experience in the area of rehabilitation

7. Approximate percentage of work time spent presently in rehabilitation of deaf people. _______ 25% or less _______ 25-50% _______ 50-75% _______ above 75%

8. Would you personally be interested in a continuing training program?
_____ YES ______ NO

9. Which month of the year would be most convenient? ______________________

Length of time? _______ 3 days _______ one week _______ two weeks
more than two weeks ________

Would prefer? ________ Undergraduate credit
________ Graduate credit
________ No credit

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THE DIAGNOSIS AND TREATMENT OF THE HEARING IMPAIRED CHILD: AN APPRAISAL OF SERVICES

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A DESCRIPTION OF THE SERVICE FUNCTION

Information comprises the currency of power itself.

Ralph Nader

OVERVIEW

Introduction.

The diagnostic approach being espoused in these pages is neither new nor unique. Instead, it attempts to represent an organization of general principles gleaned from the contributions and sources of several disciplines. As a concept widely referred to in the literature, diagnosis touches upon such notions as:

- Determining the nature of a pathological state for the purposes of classification, and the identification of underlying causes (*cf.* Kirk & McCarthy, 1961; Silver, 1967).
- Describing present performance states (Glaser & Nitko, 1971).
- Purposefully planning what to do for a given child (Bateman, 1965).
- Systematically exploring correlated factors for the purpose of formulating prescriptions (Bateman, 1965).
- Organizing a multi-disciplinary approach to the evaluation, treatment and management of the exceptional child (Giannini, 1964).
- Gathering of information that may prove helpful in the making of treatment decisions (Della-Piana, 1968).
- Verifying and quantifying the description of symptoms and identifying their possible determinants in order to reduce uncertainty in the predicted effectiveness of each potential treatment (Besel, 1973).

Running throughout the premises of several of these considerations is the implicit acknowledgement of the cyclic nature of the diagnostic process. A process involving (a) the selection of tests that can validly discriminate among the conditions that are being suspected, (b) the creation of a probability statement alluding to the presence of a specifically detectable symptom, and (c) a prescriptive treatment procedure that takes into account the cost, risk, and predicted effectiveness of each of several alternative treatments. At the point where this cyclic process terminates with the positive identification of a cause, or with the prescription of a recommended treatment, then diagnosis takes on the characteristics of being a *decision statement.*

It is the intent of this paper to draw attention to some of the more notable deficiencies contributing to the formulation of negative or positive "decision statements" regarding handicaps in general, and hearing impairment in particular. The diagnostic philosophy within which this characterization will unfold embraces the trifold recognition that:

1. the subject for diagnostic evaluation is not the pathological disorder but rather the complete and whole human being;
2. the entire diagnostic process becomes (re)habilitatively significant only when couched within the context of coordinated management and treatment; and
3. the diagnosis of the handicapped child must be intimately caught up with the effective delivery of treatment services.

Unless these conditions can prevail, then diagnostic evaluations will do little more than ascertain whether the child is handicapped or not. It will give scant, if any, indication (a) of the extent of the child's needs, (b) of his/her limitations and capabilities, as imposed by the handicap, (c) of the child's eligibility for services, and (d) the manner of arranging an appropriate mix of services to comprise the treatment effort.

Service Needs.

The present array of services available for handicapped children is fraught with fragmentation, duplication of efforts and unresponsiveness to individual needs. As Kakalik (*et. al.*, 1973) observes, parents usually move into the system via the principal portals of either medical services, or educational services and/or financial assistant services, only to end up bumbling along to still more agencies in an uncoordinated series of chain referrals. This is entirely understandable, in light of the fact that parents are rarely in a position to survey what is being offered so as to opt for the program presenting the most promise. Their meanderings from one agency to another are motivated by many factors, prominent among which are (a) the need for a firm, definitive diagnosis and an understanding of what it means in terms of therapeutic placement, and (b) the need for more thorough explanations of the handicap and what it means in terms of their own responsibility to the child.

All too frequently parents have been heard to cry out in protest against this glaring gap in services that should be providing them with information about both the handicap and where to go to get help. These frustrated plaints have taken such forms as:

- "I don't know what can be done or even how to find out what can be done!"
- "I don't know how or where to obtain the services my child needs!"
- "How do I know that this service is the best available for my child?"

Unless parents are extremely persevering, have some imagination, have experienced at least a little success in their attempts to learn the existence of, and tap the resources of the array of presently available services, personal discontent and family-wide frustrations will inevitably ensue.

One modest, yet significant, attempt to come to grips with this informational service area deficiency has been the creation of a nationally based Special Education Information Center (SEIC, 1969). Its stated objectives are:

- To help parents of children with emotional, physical and mental handicaps find and identify educational and related services for their handicapped children.
- To provide assistance in the complex job of actually placing a child in a program which will help meet his/her individual needs.
- To advocate the right of all handicapped children to develop their human potential to the fullest.

Although, due to its various operating constraints, the Center cannot provide tailored referral and placement services, it can make available the names of local personnel and facilities of potential use to the inquiring parent. Its accomplishments to date, besides being a model operational facility, include (a) publication of *Practical Advice to Parents* which offers parents some guidelines in seeking out special child services; (b) preparation of an index of organizations concerned with exceptional children at the municipal, state and national levels; (c) issuance of the periodical *Closer Look*, published in league with the National Association of State Directors of Special Education (Box 1492, Washington, D.C., 20013); and publication of a regionally specific source book that can serve as a prototype to future undertakings elsewhere in the country. The source book is *Directory of Services for Handicapping Conditions: Services in the Metropolitan Washington Area for Persons with Handicaps Due to Mental, Physical or Special Conditions* (The Information Center for Handicapped Children, 1619 M Street, N.W., Washington, D.C. 20036). This *Directory*, in addition to listing facilities in the Metropolitan Washington area, contains several appendices dealing with alcoholism, drug abuse, genetic counseling, military facilities, Medicaid services, and parent groups. Its indices are both alphabetized and arranged to list specific handicaps with approximately 85 listings entered for hearing and speech impairments alone.

The potential of and positive headway gained by such enterprises, in supplying referral information services where they are in most demand — the doorstep of the person in need — represent only a paltry beginning in the attempt to grapple effectively with the recognized deficiencies of this service area.

FOCAL POINTS OF THE PROBLEM

General Concerns.

Estimates of the number of handicapped youth vary widely, depending on the definitions used, the data believed and the type of services indicated. The magnitude of the problem is thrown into bold relief, however, when one considers that of the 83.8 million school-aged youth (0-21) living in the U.S. in 1970, approximately 12% were handicapped; slightly more than a half a million of these were hearing impaired (*Census*, 1972) *Digest*, 1971).

In view of the sheer numbers of parents and children being dealt with, any attempt at providing informational services solely on the basis of a "yellow pages" directory would prove — and has proven to date — wholly deficient. What does seem to be indicated, however, is the much larger and looming need of establishing *child advocacy councils* at local, regional and national levels (*cf. Report*, 1970; *cf.* Alpiner, 1967). The universal and overriding concerns of these councils would be (a) strengthening of family life in all its forms, and (b) education for parenthood that emphasizes the value and uniqueness of every child. More specifically, the complexion of the leadership characterizing these councils would be client-centered and advisory in nature. If so, the councils will be far better equipped (a) to promote community-based family-care resource centers that are capable of providing the diagnostic services necessary for the well-being of the child, (b) to expedite the flow of referral information among schools, programs, and agencies via a nationwide computer input system; (c) to urge the frequent reassessment of children to ensure their proper placement throughout the service system, and (d) to foster the philosophy that a diagnostic evaluation is the beginning, and not the end of a long chain of coordinated-treatment events.

Various state, county, and institutional programs for handicapped children in general, and the hearing-impaired child in particular, have offered models for the management philosophies and procedural practices to be emulated by the creators of such child advocacy councils (Downs, 1974, 1968; Melcher, 1970; Asbed *et al.*, 1970; Freeman, 1969, 1961; Curphey, 1967; Garbee & Stark, 1967; Essex, 1966). The approaches seemingly endorsed, to varying degrees, by these programs include (a) the comprehensive assessment of each child's problems, and (b) the formulation of workable treatment strategies. Sanders (1971) refers to these features collectively as the *case management approach.* Essentially, what this aproach does is to (a) identify the problem at hand, (b) map out its alternatives for treatment, and (c) attempt to pursue its solution in a coordinated fashion. The implications case management thinking has for diagnostic concerns merited serious consideration, especially when it is realized that it is not *what* one does in treatment therapy, but *why* one does it, that is of such vast importance. Thus by casting the diagnostic decision statement into the mold of a strategy, the treatment specialist can gain an overall perspective of the task to be undertaken, as well as obtain a "feel" for the interrelatedness of the various tasks. As a quick illustration, strategy formulation would help determine whether one should deal directly with the child, should concentrate principally upon modifying the parents' management of the child, or should blend certain aspects of both these concerns.

Problem Statement.

Murphy (1972), in ascertaining the current status of services available for hearing impaired children, found that although 33% of the states that were canvassed lacked consistent standards for general hearing and vision testing, about one-half had enacted some statutory provision requiring screening services. As a result of these initiatives, a total of 55,000 hearing impaired youth in the 1970-1971 school year were positively identified as having received such services. Luhr and Dayton (1972) stressed an additional need for applying a comprehensive and differential diagnosis to all hearing-impaired children who are positively identified in routine screenings. A residential school for the deaf was cited by them as a case in point. In it (a) 60% of the students were found to have significant, yet correctable, ocular defects, (b) 50% of the preschool children had real or suspected orthopedic involvements, and (c) 20% of the entire school population tested positive for central nervous system disorders. After the complete diagnostic and medical treatment program was carried out, noticeable improvements in student performance were evident. Frisina (1967), taking into account the vast number of clinical specialties involved in such wide-scale diagnostic programs, pointed to the necessity of strengthening existing facilities by sharing, and reorganizing efforts at the local, intra-state, and inter-institutional levels.

Care must be exercised, however, when pulling together a diagnostic team in the fashion advocated by Frisina, to avoid (a) the pitfalls of the team approach, and (b) the failure to recognize a child's intra-individual variability. Essentially, the former danger amounts to "prescription by committee" wherein each member of the team is responsible for his/her own specific competency, without, at the same time, ever feeling individually responsible to the child or parent, *per se*. Thus with no one appearing to have the power of final decision, nor even a sense of responsibility beyond his/her own parochial concerns, it is conceivable that neither will any one be willing to carry the burden of guilt in the case of failure. Woody (1968) proposes a way to avoid this issue by advocating the creation of an "ombudsman" whose responsibility as a spokesman for the individual would be to influence the course of team recommendations in a manner most beneficial to the client.

The second danger of the "pooled" diagnostic team concerns the matter of what Smith (1969) calls intra-individual variability. The effectiveness of the treatment or placement recommendation resides in the recognition that programmatic needs do not remain static for any given child. Children change, techniques improve, hearing aids get better, and teachers/therapists shift emphasis. Unless the prescribed services provide for frequent and routine reassessment, the expected outcomes will be less than optimal. The National Advisory Committee on Handicapped Children (*Basic Education*, 1966) reinforced these notions when it set forth as one of its priority recommendations:

- "Procedures for testing, assessment, identification, and periodic reports of progress shall . . . be free of discriminatory practices . . . and that frequent assessments of all handicapped children shall confirm the appropriateness of their placement in special programs."

The Committee further emphasized the need for resolving such recurrent problems as:

- "The need for cooperative planning guidelines to make more efficient use of existing resources. Too often the disciplines of education, medicine and rehabilitation act in uncoordinated and independent fashion.
- "Communication of new knowledge and techniques so that they become realities at the individual recipient level.
- "Preventive measures must be met in early childhood education programs. If these measures are to become universally available to all handicapped children and their families, major new shifts in community responsibility and state legislation must materialize."

It would appear then that the problem's focus centers directly upon the type, quality, known existence and local accessibility of treatment services. Quite specifically, the areas that provide direct services and require closer attention are (a) direction-referral, (b) prevention, (c) identification, and (d) child/parent counseling; less pronounced, however, are the deficiencies found in the additional service areas of (e) financial aid, (f) medical treatment, (g) special training, (h) manpower recruitment, (i) education, (j) job placement, and (k) mental and physical hygiene. With the problem thus defined, the remaining sections of this paper are concerned with appraising the state of the current needs in each of the four high priority service areas identified above; and, where appropriate, making recommendations for remedial action.

It is sage to point out parenthetically that, in addition to the direct services sector, serious deficiencies abound across the scattered spectrum of indirect services. Here, too, may be found generalized instances of no one knowing who is doing what, for whom and with what effect. Cases in point are (a) preschool programs that fail to provide hearing impaired children with the full complement of services requisite for the development of their language and communication skills (Babbidge, 1965); (b) labeling and classification systems that fail to indicate a child's eligibility for services (Kakalik, *et al.*, 1973); and (c) administrative management evaluations that fail to measure program effectiveness in terms of both resource inputs and service performance outputs. Examples of this last category are caseload management and selection, diagnostic procedures, dismissal criteria, effective follow-up practices, and the like (Rossmiller, *et al.*, 1970; Rees, 1967; Ludlow, 1974).

AN APPRAISAL OF SERVICE AREA DEFICIENCIES

. . . growth grew [illegible] so much from design
as from the compulsions of circumstance.

DIRECTION-REFERRAL SERVICES

Appraisal.

Observations, in addition to the allusions in the foregoing discussions, are fully warranted here due to the immense gravity of the concerns that are being expressed about this service area's shortcomings. It does not tax the imagination to perceive its pivotal nature in relation to all other service areas. How effective, in fact, can the full complement of a service package be, if the fulcrum point of meaningful direction and coordinated referral fails to blueprint the blend of services available to the child, or, even worse, it if fails to make known their very existence?

Central to an appreciation of the direction-referral concept is the notion of purposeful and periodic matching of the child's needs, with the proper mix of locally available services. Such activities require the systematic dissemination of a continuously updated information base — available to both parents and professionals — in order actually to couple a diagnosed state of need with a locally available treatment facility.

For the child with congenital hearing impairment, anything short of a full and coordinated complement of services can cause irreparable damage by delaying the onset of therapeutic treatment. How often has it been the experience of parents to hear the cavalier statement: "Your child is not suitable for our facility. Try the agency down the street."? How often, in fact, has a professional checked that agency down the street to see if the bewildered family obtained the service they needed? How often have physicians been perceptive enough to make referral to a hearing and speech clinic or even to engage in a follow-up to that referral? And, finally, how often have hearing and speech clinics dallied in referring the child to an educational facility?

These are poignant questions . . . questions that would not need to be asked if the deficiencies in this service area were not so pronounced. How can one not be alarmed when he reads that by the time the 1964 rubella epidemic victims in New York were almost three years old, more than one-half either were receiving no educational services at all, or were receiving services too insignificant to be meaningful to either the child or the family (Cooper, 1966)?

Recommendations.

In practice, direction-referral services have been the exclusive responsibility of no one in particular and everyone in general. There are some dedicated professionals, who, upon occasion, make it a point to step outside their specialty areas and grope their way through the medley of services existing in sister disciplines. There remains, however, the undeniable need for a formalized and comprehensive referral agency having the wherewithal, not only to initiate direction-referral programs, but also to provide continuing follow-up and redirection. If establishing a monolithic, nationalized umbrella agency of the child advocacy council ilk should prove to be politically untimely, then the alternative that Cooper (1971) proposes in his *centers for responsibility* concept may be attractive. When the diagnosed-need states of a child became manifest, these locally operated centers would supply the link in effecting smooth and sequential transitions from one agency to the next.

PREVENTION SERVICES

Appraisal.

Children are entitled to good health care. Handicapped children are no different in this regard, except that they require even more of the services and benefits that such care can provide. From the wide assortment of publicly and privately provided health services have come a substantial contribution to the good health of American children. Hallmarks in these services include, but are not limited to, such programs as:

- The 1962 *Institutes of Child Health and Human Development Act.* This Act supports the research and training of physicians and paramedical personnel in the public health field, in special health problems, in prenatal development problems, and in human growth processes.
- The 1963 Amendment to the Social Security Act (1935) providing for the expansion of *Crippled Children's Services* to include non-crippling conditions as well.
- The 1965 Amendment to the Social Security Act (1935) created the *Children and Youth Projects* program which makes provisions for comprehensive health services in low income and high density areas. With the prevalence of troubled hearing being substantial in such areas (Roberts, 1972), it was not surprising to find that in 1971 this specific program positively identified some 5800 children with hearing deficiencies (*Justifications of Appropriation*, 1972).
- The 1967 Amendment to the Social Security Act (1935) created the *Child Health Act* which was responsible for moving *Maternal and Child Health Services* further into the preventive areas of family planning, prenatal clinics and early school identification programs.

These programs and their many subcomponents, such as *Maternal and Infant Care*, while presenting a measurably preventive impact on the total handicapped population, are still reaching only a fraction of those for whom they were intended. Prominent among the reasons for this spotty coverage are (a) poor referral services and (b) token fiscal outlays. Reported in the Rand Corporation study cited by Kakalik (*et al.*, 1973) is the fact that the total annual budgetary outlay mandated by all governments (United States) in fiscal year 1971 was 4.7 billion dollars, less than 1% of which was targeted specifically to the neglected service area of prevention.

On the face of it, it would appear that the biomedical sciences comprise the substantive cornerstone of the prevention services sector. Advances in obstetrics and pediatrics have resulted in the survival of an increasing number of children with resultant degrees of sensory, neurologic or motoric impairment. Studies conducted or reported by Cooke (1964), Drillien (1961), Dann (*et al.*, 1958), and Knobloch (*et al.*,

1956) have confirmed the association of prematurity and low birth weight with increased frequency of such impairments. Myklebust (1964) noted that it is especially difficult to judge the success or failure of prevention services with respect to hearing impairment, because advances in treatment seem to prevent the condition as frequently as they result in survival with the condition. Prevention services in the 1970's, however, can be made of more recognizable assistance in the area of deafness, by reducing the incidence of the principal causes of congenital hearing impairment — hereditary deafness and subclinical maternal rubella (*cf.* Karmody, 1969; *cf.* Vernon, 1969). Medical intervention in the latter area of causality has been enhanced by the tissue culture technique of isolating the rubella virus. This makes possible the effective vaccination of women prior to their childbearing period, so as to avoid the catastrophic effects of the virus during the first trimester of pregnancy (Hardy, *et al.*, 1966).

Genetic factors have been reported as a leading cause of hearing impairment throughout the century (Vernon, 1968; Fraser, 1964). Much constructive prevention can be attained through genetic counseling, especially with couples showing Rh incompatibility, or showing the likelihood of begetting offspring with the condition of deafness. McLeod and Sweeny (1971) offer additional insights into the treatment, diagnosis and prevention of hereditary deafness (*cf.* Zellweger, 1967; Miller, 1965).

Services must also be recognized as existing in the areas of *secondary prevention*. Measures contained in these areas have usually been designed to correct existing defects or to alleviate educational retardation — e.g., fitting hearing aids, total communication training, special class placement, tutoring by peers, and the like. Perhaps, if professionals viewed these well known measures from the perspective of prevention, then the measures might take on new meanings and acquire new dimensions for application.

Recommendations.

It is perhaps a *conditio sine qua non* for the success of a community-based prevention effort that it must be able to attract an ample and well trained staff. Cooke (1964) estimated that almost half of each medical school graduating class will have to lean toward the obstetric, pediatric or general practice fields, in order to keep abreast of the early childhood population. The medical training of these physicians will, by necessity, have to emphasize a disease-anticipated and longitudinal (sustained) approach toward good health care. Complementing the presence of such a medically oriented staff could be a very effectively trained host of paraprofessionals who might encourage (a) target populations in the use of the preventive facilities, and (b) public health and urban renewal officials to place such clinics in locations of optimal accessibility (*cf.* Harris, 1971).

Prevention services are also very much a part of the perinatal and postnatal picture. The damage that can occur during infancy and early childhood from physical trauma, infection, anoxia, and chemical poisons such as lead is well known. Several of these damaging occurrences can be avoided if a well designed and enlightened program of prevention is implemented. Despite the effectiveness of such preventive efforts, tragedies undoubtedly will still occur, and with alarming frequency, in instances where either the mother experiences out-of-the-ordinary labor and delivery, or where attitudes toward proper mother/child health care at the time of delivery are uninformed becuase of inadequate information about prenatal histories. Infants born under these and similar conditions should be listed in a *high risk register* so that public health personnel can readily keep abreast of the newborn child's development.

This notion of a high risk register — fraught as it is with practical problems and possible invasions of privacy — could become a powerful tool in the area of prevention services (*Davis, 1965; Goldstein & Tait, 1971; Schlesinger, 1971; Glorig, 1971*). The results of routine neonatal hearing evaluation procedures are somewhat uncertain at ages below 36 months; it would be wise, therefore, to limit general screening to those who appear to be possible candidates for the high risk register (Downs, 1968). Downs and Hemenway (1972) estimate that one hearing-impaired child will be found among every 200 high risk cases; the figure would be one in 2,000 for the general population. Notwithstanding such economies and probabilities, it is statistically certain that some children will slip through the "cracks" . . . register or no register, screening or no screening. This fact emphasizes the need for the more extensive exposure that pediatricians must obtain in the area of hearing impairment and in learning to apreciate the implications behind the notion of a high-risk register. The pediatrician will be faced with the responsibility for (a) periodic testing of high risk children, and (b) occasional hearing evaluations of all preschool children to identify those who, though testing was negative at birth, may be exhibiting progressive degeneration of hearing (*cf.* Wildman, 1968).

IDENTIFICATION SERVICES

Appraisal.

How many children are there in this country whose intellectual ability or earnestness of motivational efforts have been brought into question because of the label of "slow learner"? How many of these children have, in fact, received the differential diagnoses necessary to substantiate such an appellation? And how many of these children's lives have been subsequently marred due to frustration in not being able to keep abreast of their peers or to engage the sympathy and understanding of their parents and teachers?

Searching queries such as these spotlight and emphasize the gaps that are proliferating throughout the service sector embodying outreach and identification programs. Kakalik (*et al.*, 1973) unearthed embarrassing evidence pointing to the virtual non-existence of vision/hearing screening programs at the preschool level — full thrust programs of identification that were supposedly being universally applied. Instances were also found of slipshod identification methods carried out by untrained personnel, such as psychologists administering verbal instruments requiring verbal instructions to hearing impaired children. The erroneous identifications and tragic misdiagnoses that result from such practices have been extensively treated in the literature (Holt, 1973; Harlow, 1967; Rosenberg, 1966). Vernon and Kilcullen (1972) have identified three factors as significant in the misdiagnosis of mental retardation in a deaf population: (a) the use of inappropriate mental assessment instruments — Vernon (1970) and Levine (1971; 1960) offer substantial guidelines in the selection and administration of psychodiagnostic instruments in the selection and administration of psychodiagnostic instruments with hearing impaired children; (b) the presence of handicaps additional to deafness; and (c) the failure to deliver a battery of audiometric tests — for purposes of reinforcing the definitive description of the diagnostically identified condition. The importance of this last-named factor can be appreciated by considering the fact that hearing-impaired children, in spite of their inability to discern spoken language, may have enough hearing sensitivity to low frequency environmental sounds to complement their lipreading ability and give the appearance of "non-handicap". This situation contributes to the occurrence of the quasi-diagnoses — by layman and professional alike — of (a) "That child's not paying attention," (b) "The child is of questionable intelligence," or (e) "Your child must have a brain-related disorder."

Accurate, audiological identification of children with hearing losses traverses a wide range of issues and concerns, including (a) the complexity of the testing task, (b) the need for sustained attention to confusing listening tasks, (c) the continued burden of physical discomfiture; (d) the child's own sense of apprehensiveness, immaturity and reduced attention span, (e) the possibility of additional handicaps, and (f) the child's verbal limitations for describing the nature of his/her subjective listening experience . . . an item uniquely important in determining the site of auditory lesion. With these factors serving to confound the accuracy of the identification attempt, then (a) it is not entirely clear exactly what is being tested, and (b) it is not possible to draw a precise line between where the child failed to respond and where the test failed to make the identification (*cf.* Jerger, 1967). Goldstein (1967) has done work in the area of developing electrophysiologic hearing test instruments that require less participation by the child. Although these behavioral instruments may enhance the precision of the audiologist's tools, there remains a tremendous difference between, "Your child's peripheral sense organ of hearing is intact", and "Your child's hearing is normal". Whichever way one looks at it, the procedures of classical audiometry simply do not lend themselves to downward extrapolation, within the 0-36 months age range. At this level, additional diagnostic tools take precedence. Medical histories, parental observations, otoscopic and radiological examinations, developmental check-lists covering communication, neurologic, intellectual and social maturation stages, and several other approaches that have been widely endorsed and supported throughout the literature are examples of such tools (Downs, 1974; McConnell, 1970; Horton & Sitton, 1970; *Human Communication*, 1969; Eagles, *et.al.*, 1967; Davis, 1965).

Hopes were high in the late 1960's when neonatal audiometric screening programs were becoming feasible and effective, and resulted in such developments as:

- *The Baby Auditory Behavior Index* (Downs, Sterritt & Graham, 1967; Downs, 1967). This instrument produces a scale outlining the infants' successive stages of auditory maturation.
- *Verbal Auditory Screening for Children — VASC* (Griffing, Simonton & Hedgecock, 1967). The studies by Ritchie and Merklein (1972), and also Mencher and McCulloch (1970) have outlined the strengths, weaknesses and suggestions for the improvement of this diagnostic screening instrument.

Additional studies by Rose (1971), Glorig (1971), Mindel and Vernon(1971) and Schlesinger (1969) have offered perceptive criticisms concerning the validity, procedural administration, and reliability of these and other neonatal diagnostic hearing assessment programs.

Recommendations.

Since no age is too young for the identification and habilitation of the hearing-impaired child (Gerber, 1972), a tremendous responsibility is being entrusted to pediatric audiologists and physicians to accurately diagnose and correctly place these children in appropriate treatment facilities.

The need is great for developing more refined diagnostic instruments useful in making decisions during the early childhood years. The pioneering effort attempted by Downs (1974) with her *Deafness Management Quotient* is a definite start in the right direction. The *dmq* quantifies the results of several diagnostic inputs against a 100-point scale, producing a specific "score". Depending on where the score stands in relation to an empirical cut-off point, diagnostically useful information is obtained for determining the feasibility of prescribing an acoupedic approach or a total communication approach for the hearing-impaired infant.

Finally, the most overpowering need exists for communities to establish an outreach identification program patterned after the Montgomery County, Maryland, model as described by Asbed (*et al.*, 1970). This exemplar in the case-finding technique consists of a two-stage screening process involving (a) a parental check-list screening, which was effective in positively identifying communication impairments in six out of ten children screened, and (b) a 30-minute clinical screening that chiefly diagnosed speech, hearing, language, memory and vision functions in very young children. The total case-finding yield for the entire program, in what was at that time the most affluent county in the nation, was the astronomical figure of three children identified out of every four screened! Imperatives mandating the need for replications of this effort elsewhere throughout the country are unequivocally clear.

COUNSELING SERVICES

It is universally recognized that early identification and treatment augurs well for any handicapped child and especially for those suffering communication-related disorders. One of the more prominent horns that characterize the habilitative dilemma — a dilemma of parental search, acceptance, and pursuance of a treatment prescription — rests squarely upon the heads of the parents themselves and their manner of interaction with their handicapped children. It is an accepted fact by those who have constructed programs for hearing-impaired children, that unless the parents' cooperation can be fruitfully enlisted (in the paraprofessional and supportive roles advocated by Horton (1971) and Harris (1971)) and unless their emotional needs can be adequately dealt with, the effectiveness of the treatment will be placed in substantial jeopardy.

Mindel and Vernon (1971) reported the very close correlation that exists between the parents' initial reactions to discovery of their children's hearing impairment and the degree of their future success in handling them. Shontz (1965) has identified the crisis reaction stages experienced by parents of hearing-impaired children — emotional shock, tentative realization, defensive retreat, full acknowledgement, and final adaptation. Due in part to the invisible nature of the deafness handicap, the "defensive retreat" stage of denial and avoidance of reality is attractive. Though some parents may worry and do nothing, others will hope against hope that the passage of time will snap the child out of his/her current "phase". Still other parents will persevere to the point of beginning the well known phenomenon of the "shopping excursion". Curiously enough, the parents of hearing-impaired children far outnumber the parents of children with cerebral palsy, mental retardation and mongolism in seeking as many as five or more specialists in their quests for either a more positive prognosis or a wishful reduction of their child's handicap (Barsch, 1968). Ross (1964) and, also, Reid (1958) emphasize that while the parent cannot be expected to devote his or her entire life to the child, the severity of the parent/child adjustment problems seems to be greater with the milder or more invisible forms of handicaps. Appreciation for this point can be understood by recognizing the differential degrees of ambiguity attendant upon the handicapping condition. Conditions exhibiting more severity and concreteness leave less room for questions about the presence, performance and consequences of the handicap, thereby reducing the likelihood of the formation of unreasonable expectations. Further enforcing these findings are the definable goal types that Kakalik (*et al.*, 1973) noted to be characteristic of such parents:

- *"I want my child to live up to his/her fullest potential, not merely the potential of a handicapped person, but as a human being."*

  Such parents, viewing the handicap as an obstacle to overcome, will usually seek out treatment prescriptions that emphasize academic preparations.
- *"I want my child to be as much like normal children as possible."*

  Such parents will be more prone to seek out specialized equipment to improve their children's sensory skills.
- *"I hope that my child can achieve enough personal and financial self-sufficiency, to be a functioning, if handicapped, member of society."*

  This is one of the frequently stated Federal goals for the handicapped child.
- *"I want my child to adjust to his/her handicap . . . to come to terms with it, in the sense of learning to live with it rather than overcoming it."*

  This represents perhaps one of the least ambitious goals, for it minimizes the degree of parental responsibility and involvement.

Reactions of the kind illustrated above usually bring counter-productive bitterness and confusion that could well have been avoided if an early and enlightened program of professional intervention had been instituted. Legion are the parents who have voiced resentment toward professionals who withheld information or misinformed them about the major issues swirling around their child's handicap. Unfortunately, with respect to hearing-impairment, medical personnel are usually very poorly informed as to how the basic issues of the handicap interfere with the child's linguistic, communicative and psychosocial development. All too often they have assumed that once the responsibility has been handed over to an educational facility, the future of the child is assured and parental qualms can be put to rest. This at[illegible] has underscored a true lack of sensitivity exhibited toward parents' immense vulnerability to anything that professionals utter — physicians, psychologists, educators, audiologists, and hearing aid dealers. The first professional to whom a parent speaks is really being asked for something much more than a diagnosis. From a parent's viewpoint, the diagnosis of a handicap is not the end. It is not even the beginning of the end, but rather the end of the beginning of a long series of life adjustments. A study of parental attitudes, conducted by Barsch (1968), showed one sore note of contention to be the very limited amount of time professionals were willing to devote to interpreting the diagnosis for them and spelling out its implications. Parents resent not being given the time to question, comprehend, and digest the diagnostic information given them. Thus, unless parents can be given greater opportunity to discuss diagnoses, to ventilate their feelings, and to secure factual information, a signal deficiency in the provisioning of counseling services will remain and increase (Bolton, 1972; Mindel & Vernon, 1971; Barsch, 1968).

SUMMARY

Parents and professionals alike, bewildered as they are by the haphazard orchestration of agencies existing throughout the public and private service sectors, have been frustrated in their attempts to achieve an appropriate mixing of child treatment services. Kakalik (*et. al.*, 1973) says the principal problem is the basic inequity of service provisions, not simply inadequate services. Those who are financially able can obtain excellent services if they are willing to seek them out and pay for them. Those who are not so well off economically have the institutional mechanisms, alluded to above, through which they may obtain assistance. The real crux of the matter, therefore, lies in the fact that the mere existence of such services says nothing about (a) their availability being known to those in need, (b) their accessibility to those who need them frequently or periodically, and (c) their relative (re)habilitative qualities for those who wish to opt for the best of available alternatives. "Yellow pages" directories, child advocacy councils, and centers for responsibility are but a few of the many suggestions put forth to reintegrate the desperately deficient area of direction-referral services.

Improvements in the areas of public health legislation, biomedicine, genetic counseling procedures, and secondary prevention techniques, and a promulgation of the high risk register concept have all contributed, and will continue to contribute, toward shoring up the glaring gaps in the prevention-services sector.

Outreach and identification procedures can be substantially enhanced by improving early childhood diagnostic tools such as the *DMQ*, the *Baby Auditory Behavior Index*, the *VASC*, and other neonatal hearing testing procedures; by the proliferation of community-based case-finding techniques patterned upon the Montgomery County model; and by orientation of physicians in-training so that they may become skilled in the recognition of auditory impairment and knowledgeable about its attendant problems.

Finally, recognition is given to the need for making counseling service provisions abailable for purposes of parental guidance. Professionals must also be counseled when delivering advice to parents that borders on another discipline or service area. Parents must be made aware that the recommendations of agency A do not in any way commit agency B to anything. Thus, some degree of interdisciplinary cooperation will be necessary if the program of treatment best suited to the needs of the child, is to be achieved.

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TECHNICAL-VOCATIONAL EDUCATION OF THE DEAF . . . 1974

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"The great thing in the world is not so much where we stand as in what direction we are heading."

Oliver Wendell Holmes

In 1970 career education became the top priority of the United States Office of Education under Commissioner Sidney P. Marland. The term "career education" as used in the United States still awaits a uniform definition; a tentative definition preferred by the United States Office of Education reads:

> "Career education is the total effort of public education and the community aimed at helping all individuals to become familiar with the values of a work-oriented society, to integrate these values into their personal value systems, and to implement these values in their lives in such a way that work becomes possible, meaningful, and satisfying to each individual."

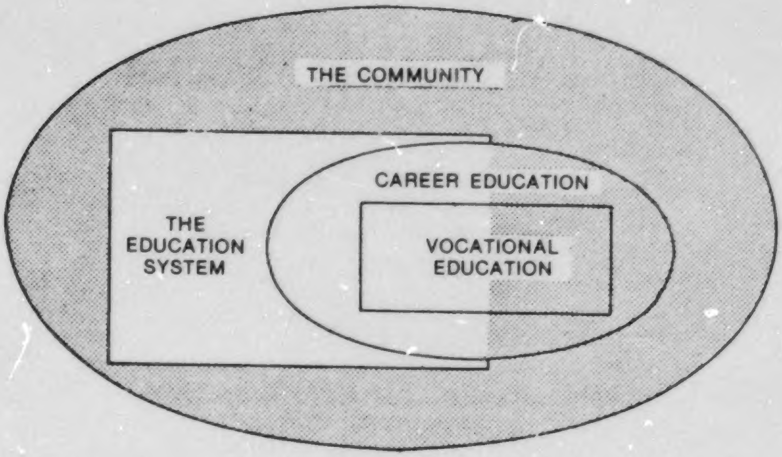
The concepts underlying career education are evolving from many different sectors of our nation. Dr. Robert E. Blum, Coordinator for Career Education of Jefferson County, Colorado, offered the following basic concepts to the April 1974 Careers Forum of the Council of Organizations Serving the Deaf:

1. Career education is for *all* individuals of *all* ages.
2. Career education is more than vocational education but less than all of education.
3. Career education has a focus on the working role of individuals, but shows the relationship between work and other life roles.
4. Career education is concerned with maximizing the self-fulfillment of individuals through economic and non-economic work activities.
5. Career education is concerned with providing the goods and services needed by people in our society.
6. Career education is the responsibility of both educational institutions and the community.

Technical-vocational education is a major component of career education. The relationship between the two is shown in Figure 1, taken from *Education: A Handbook of Implementation*, prepared by the United States Office of Education:

FIGURE 1

Career Education's Place in Education



Technical education and vocational education have previously been defined in part by this writer, as follows:

Vocational Education — a process embracing all the experiences an individual needs to prepare for a useful occupation. Vocational education has no sharp limits as to types of occupation, although it generally excludes areas of endeavor typically referred to as the professions such as the law, medicine, ministry, engineering, etc. Various state and federal documents give the purposes of vocational education: to provide training; to develop skills, abilities, understandings, attitudes, working habits, and appreciations; and to impart knowledge and information needed by workers to enter upon and make progress in employment, on a useful productive basis. Vocational education is not considered as general education; nevertheless, a good vocational program provides continuity with general educational experiences.

Vocational education programs are found in high schools, post-secondary schools, or in combination high-school and post-secondary curricula. Post-secondary schools, in this context, include technical-vocational institutes, community colleges, junior colleges, and the like. Vocational education is a traditional part of American education. In recent years, however, it has been enhanced by innovative programs designed to serve special populations. One example is a cooperative Special Education, Rehabilitation and Vocational Education program known as SERVE. SERVE is a cooperative venture in various localities in the United States designed to serve low-incidence handicap groups by offering comprehensive services from the above three major supporting agencies.

Technical Education — a comparatively recent development designed to meet the complex technological needs of modern industry. This type of education is considered to be at a post-high school level, and is intended to produce or serve a category of workers between the skilled craftsman and the graduate engineers or scientists (the professional). Although there is no uniformity of job-title classification for technicians, by and large they participate in such work areas as research, development, design, production, maintenance, testing sales and supervision. The training concentrates heavily on applied mathematics, physics and chemistry; a high degree of technical knowledge and technical theory; and considerable laboratory and mechanical operation procedures.

The terms technical and vocational education may be used as free-standing terms or may be combined into a single term such as either technical-vocational education, or vocational-technical education. The preferable usage of these terms depends upon the referential base. For references to education at the National Technical Institute for the Deaf, the Rochester Institute of Technology or the Massachusetts Institute of Technology the term "technical education" would be preferred. However, for the Seattle Community College or the St. Paul Technical-Vocational Institute, "technical-vocational education" would be the preferred usage. In many settings, the difference between vocational education and technical education is discrete. Some vocational courses are highly technical, and some technical courses are minimally technical. The important ingredients in either case are that the student be appropriately challenged by the course of study, and that it lead to related satisfactory employment.

The importance of technical-vocational education is illustrated by the following statements:

1. The United States Office of Education estimates that four out of five jobs created in the 1970's will require vocational or technical training but not a college diploma.
2. For 30% of these jobs vocational training will be required and for 50% technical training after high school will be necessary.
3. The majority of these jobs will compete with jobs requiring college degrees in terms of personal satisfaction, social contribution, starting salary, advancement and salary potential.

The emergence of career education with its impact on technical-vocational education offers hope for an improving life-style for the majority of deaf Americans. To bring technical-vocational education for the deaf into sharper focus it may be useful to present a listing of major courses of study deaf students have successfully completed at the Regional Programs for Deaf Students (Seattle Community College, Delgado Junior College and St. Paul TVI) since 1969. These courses are:

UNDUPLICATED COURSES OF STUDY AT THE THREE REGIONAL POST-SECONDARY PROGRAMS FOR DEAF STUDENTS

Accounting
Apparel Arts
Architectural Drafting
Architectural Technology
Auto Body Repair

Automotive Mechanics
Baking
Boiler Maintenance
Bookkeeping
Bricklaying

Cabinetmaking
Cake Decorating
Carpentry
Chemical Technology
Child Care and Education

Civil Engineering
Commercial Art
Construction Drafting
Cosmetology
Custom Apparel and Fashion Design

Health Occupations
Horticulture
Industrial Electronics
Inhalation Therapy
Keypunch

Landscape Technology
Library Technology
Machine Tool Processes
Medical Laboratory Assistant
Office Practice, General

Data Processing
Dental Laboratory Technology
Design Technology
Diesel Mechanics
Drafting

Dry Cleaning
Early Childhood Education
Electro Mechanical Technology
Flower Arranging
Graphic Arts

Photography
Plumbing
Practical Nursing
Production Art
Recreational Technology

Restaurant & Hotel Cookery
Secretarial, General
Sheetmetal
Small Appliance Repair
Technical Illustration

Traffic Transportation
Truck Mechanics
Upholstery
Watchmaking
Welding

This listing indicates a level and diversity of skill training that deaf Americans did not achieve prior to the widespread establishment of post-secondary programs for deaf students. As of February, 1974, 46 post-secondary programs for deaf students had been identified by the Office of Demographic Studies, Gallaudet College. It is estimated that in the Spring of 1974, 2849 deaf students were enrolled in these programs. Of this number 935 students or 32.82% were enrolled at Gallaudet College. NTID had a spring enrollment of 424 students or 14.88%. A total of 1490 deaf students, or 52.3% enrolled in the other 44 post-secondary programs.

A major criterion for success of technical-vocational education is the ability of the graduates to find employment. It is reported that well over 90% of deaf students who successfully complete a post-secondary program course of study are finding employment. Next, let us examine briefly selected factors that contribute to a successful technical-vocational program for deaf students.

Academic Education as an Integral Part of Technical-Vocational Education

Academic education forms the base for a strong technical-vocational education program. The better equipped a student is in language arts, arithmetic skills, basic laws of physics, drawing/drafting skills, problem solving techniques, logic and reasoning, the higher the level he can be expected to achieve. Examine for a moment, the nature of work, the training and the curriculum content of a program of study in Machine Tool Processes:

Nature of Work: Almost every product of modern industry contains metal parts or is produced in a machine constructed of metal components. The man who makes these parts is called a machinist. He must be able to make accurate parts by shaping them from metal castings, forging, stampings, or from solid metal stock. The parts must be made to an exact size by removing excess metal with the aid of machine tools, and precision measuring and gaging equipment. Basic machine tools include: the engine lathe, shaper, drill press, surface grinder, milling machine, and power saw. Advanced training encompasses Numerical Control Machines and Electro-static Discharge Machines.

Training: The Machine Tool Processes curriculum is a two-year program. Students spend four hours daily in shop areas developing their skills. By the completion of the program, students will have accumulated 1400 hours of shop instruction.

Related instruction is required in Mathematics; Physics; Basic, Intermediate and Advanced Drawing; Metallography; Related Welding; Communications; Technical Writing; Geometric Dimensioning and Industrial Organization.

Curriculum Content: Training in the shop area is dependent upon related instruction. Shop training requires application of basic, intermediate, and advanced blueprint drawing. Understanding of basic physical principles and metallography greatly enhances shop training progress. Improved writing and reading of technical communications related to the work of the machinist is developed throughout the training program.

It is clear that the stronger the academic components of his education, the better the chance a student has to compete successfully in a two-year course in Machine Tool Processes.

Traditionally American education at the elementary and secondary levels has offered: 1) College preparatory courses of study, 2) general education courses and, 3) vocational courses. The success of the majority of elementary and secondary programs was measured by the number of graduates that entered college, without much attention being paid to how many graduated. A second measure of success, although much lower on the priority scale was the number of students completing a vocational course that went directly into employment. Little attention was paid either to the students in a general course of study, or to those students attending two-year community colleges, technical-vocational institutes, and junior colleges. As a result, "vocational education" in America has not been well understood by the general public, by parents, by general and special education. Yet it is precisely in the area of technical-vocational education that people will have to receive training for most of the jobs for this decade, and perhaps for decades to come. The realization that academic education is an essential and integral part of technical-vocational education will enhance the success of deaf students.

Technical-vocational education approaches academic education in a different fashion than is found in a high school college preparatory track. In technical-vocational education the emphasis on academic education is maintained through related instruction, where related instruction comprises courses of study that are directly related to the major area of study. For example, a student in a graphic arts major receives mathematics that is related to graphic arts. Communication classes (English) focus on technical writing for graphic arts. Drawing classes relate to lay-out techniques for graphic arts. Industrial organization courses focus on the world of work.

Related instruction is provided in two basic ways in technical-vocational education. First, related instruction is offered by the major shop instructor in the major shop area (Machine Tool Processes, Graphic Arts, etc.). Most technical-vocational education programs have classrooms as a part of the major shop area. Second, related instruction is taught by complementary instructors in their own classrooms, away from the major shop area. The approach of related instruction frequently minimizes the problems deaf students have in transference of learning.

Work-Skill Aptitudes as an Integral Part of Technical-Vocational Education

Technical-vocational education places emphasis on the student's ability to perform specific work tasks. The term "work-skill aptitudes" is used in making projections for success in technical-vocational education. A working definition of "work-skill aptitude" is the ability of the student to understand work tasks of average complexity through demonstration. Indicators of this ability are reflected in shop grades, work references and personal references. Vocational instructors, rehabilitation counselors, and work evaluators in rehabilitation settings are particularly sensitive to work-skill aptitudes.

Continuing Education as an Integral Part of Technical-Vocational Education

Full time, day courses of study in technical-vocational education are frequently labeled "preparatory courses of study." In this context, such courses are called "preparatory" for employment, which is not the same meaning as in Preparatory Programs for Deaf Students. Preparatory courses of study for hearing and deaf students lead to a diploma, certificate, or degree with skill training in a specific area or areas. Successful completion of the preparatory, or day program signifies a skill level suitable for employment. Technical-vocational education is legally required to be accountable for placement of graduates. The placement rate of technical-vocational education programs typically hovers around 90%. The completion of a preparatory program or day program signifies the beginning of the continuing education program.

Graduates, now employees, are frequently required by their employer to continue their education in the continuing education, or evening program of study. In areas of unionized employment this requirement is, for the most part, mandatory. The rule is simple — no continuing education, no employment. As in the preparatory day program, the continuing education evening program follows a rigorous course of study that is skill/job related. This type of education is to be differentiated from that which is labeled Adult Evening Education; these courses of study tend largely to be avocational in nature.

Advisory Committees as an Integral Part of Technical-Vocational Education

Major courses of study in technical-vocational education, both day preparatory and continuing education evening programs, are monitored, and are regulated by advisory committees. Advisory committees usually are composed of individuals representing industry, the unions, and education. Advisory committees try to keep all courses of study directly relevant to the needs of a job. Thus, upgrading and re-training of job skills in accordance with changing technological work requirements becomes a smooth, on-going process, minimizing the need for massive re-training programs when work requirements change.

Instructional Staff in Technical-Vocational Education

The instructional staffs in technical-vocational education — both day preparatory and evening continuing education — tend to differ from those found in elementary, secondary, and college programs. In technical-vocational education programs, instructors are craftsmen first, and instructors second. Simply stated, a skilled carpenter is taught to be a teacher; a teacher is not taught to be a carpenter. This qualiity of instructional staff insures that students receive meaningful, practical education. Also, since instructors usually are drawn from industry, and in fact are recommended by industry, they have close liaison with industry. This relationship provides multiple benefits, particularly with regard to employment for graduates.

Class-Size in Technical-Vocational Education

The accountability factor in technical-vocational education requires that the majority of students who enter a major day preparatory program of study find employment upon graduation. Employment forecasts are monitored by advisory committees. These factors tend to have a regulatory effect on class size. In many technical-vocational education programs classes average 18-22 students — a size that permits a high level of individual instruction.

Psycho-Social Characteristics of Deaf Students in Technical-Vocational Education

The psycho-social characteristics of the individual students constitute the single most important factor for success of deaf students in technical-vocational education. Proper motivation, the desire to achieve, the willingness to work up to maximum level of ability and the dedicated application of self to technical-vocational education all tend to offset whatever academic weaknesses a student may possess when he enters upon a course of study. Individuals with personal habits that are self-abusing, such as chemical dependency typically will not succeed in technical-vocational education. A pleasing, pleasant and positive personality frequently can compensate to an appreciable extent for academic deficiencies.

The psycho-social characteristics of an individual student, coupled with the "spin-off" aspect of technical-vocational education can make success possible for students at widely varying academic ability levels. For example, Machine Tool Processes is basically a two-year course of study. High academic ability students will complete the course as beginning Tool and Die Makers. Students less gifted academically may complete the course in one year and become beginning machine operators. In technical-vocational education a lower academic ability student with high quality psycho-social characteristics has greater opportunities for success than a high academic ability student with poor quality psycho-social characteristics.

Preparatory Programs as an Integral Part of Technical-Vocational Education

Preparatory programs for deaf students are found exclusively in the post-secondary curricula designed for them. Preparatory programs provide for academic remediation, personal-social adjustment, career selection with skilled assistance, development of secure peer group identification, and adjustment to independent future living in a predominantly hearing environment. Education in the United States today is a life-long process, as also is career education. Close articulation between elementary, secondary, post-secondary, and continuing education programs can enhance the academic achievement and total life-style of deaf people.

Interpreters as an Integral Part of Technical-Vocational Education

Post-secondary, technical-vocational, education programs that have evolved since 1968 have placed heavy emphasis on the role of educational interpreters. A large part of the success deaf students have enjoyed in post-secondary, technical-vocational education is directly attributable to such interpreters. Consider that the deaf student is in the numerical minority in a given major area of study. The major area instructor gears the speed of the course and the level of its content to capabilities of the majority, i.e., hearing students. The plan of the course emphasizes acquisition of skills adequate for employment in a specified amount of time (one to eight quarters). The deaf student is faced daily with an unfamiliar technical-vocational vocabulary, as well as with concepts and theories that initially have no meaning to him. The interpreter becomes the central catalyst in determining the functioning level of the deaf student, and in making the initial plans for action to remedy discrepancies. Interpreters acquire in-depth knowledge of the major areas of study for which they interpret. Consequently, the interpreter, frequently on a daily basis, provides the necessary tutorial services to keep, or bring back, the deaf student to the mainstream of class activity.

Counseling as an Integral Part of Technical-Vocational Education

Counseling services are essential to unify technical-vocational education. Counselors have responsibilities for students before, during and after the formal technical vocational education program. Among the major responsibilities of counselors are: Recruiting and selection of students; successfully scheduling students' programs; and job placement and follow-up. A myriad of related counseling responsibilities include teaching classes on vocational information, leading group discussions, planning career-related tours, providing course sampling experiences, supervising housing, and overseeing students' financial needs. These and other responsibilities are in addition to "Counseling." Services of this kind are more prevalent in post-secondary programs than in secondary programs. Selected studies in Minnesota and elsewhere indicate that strong school related counseling greatly improves elementary and secondary programs in those schools that previously lacked such services.

Community Outreach and Involvement as an Integral Part of Technical-Vocational Education

Community outreach and involvement provide the necessary link between a technical-vocational education system and the community it serves. Typically the day preparatory instructional staff is drawn from the community. The continuing education evening program instructional staff usually comes from the industrial-business community. The advisory committees represent a cross-section of the community. Graduates of technical-vocational education system are employed throughout the community. In these days, technical-vocational education and the community are vitally linked.

Community personnel frequently augment the regular day preparatory instructional staff. For example, at St. Paul TVI, the United Hospital staff provide on-going health care classes for deaf students. These classes include orientation and registration at United Hospitals for health care needs that may occur while the deaf student pursues his education. Deaf students can provide a valuable community service through drama club presentations. A deaf drama club outreach program can be most effective by presenting the positive aspects of deafness to hearing groups. These hearing groups include school classes (from the elementary level up to and including college), church groups, business men's and women's groups, Lions' Clubs, Rotary Clubs, and others. The public awareness created by this kind of activity has long-lasting, positive results.

Work-Study Programs as an Integral Part of Technical-Vocational Education

In recent years work-study programs have become a part of numerous educational activities. Such programs can be of great value to many young deaf persons. Major benefits are: 1) Assisting the deaf individual to acquire work skills that are not available in the school itself; 2) Helping him learn through having him use work-related skills, such as use of time-clocks, payroll deductions and the like; and, 3) Assisting persons to learn how, as a worker, to relate to co-workers, supervisory personnel and the organization as a whole. One caution on work-study programs has been issued by some educators. That concerns the danger of sacrificing needed basic academic education that is best taught by trained teachers. In no situations is it advisable for the work-study program to perform a "baby-sitting" function at the expense of the student's conventional education. For selected students, however, well supervised work-study programs that are effectively coordinated with basic academic education backup can be immensely beneficial.

The selected factors presented on technical-vocational education may apply at both the secondary and post-secondary level of education. Today's emphasis on career education in the United States offers great hope for expanding career opportunities for deaf persons. Career education begins in the family during the pre-school years and should be viewed as a life-long process. Proper application of educational technology — including career education concepts — coupled with master teaching, proper use of supportive personnel, use of existing resources, continuing innovative approaches and programs, and the recognition of the worth of every individual, provides direction for improved technical-vocational education for deaf people.

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DEAF EDUCATION: A CHILD PSYCHIATRIST'S VIEW[1]

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INTRODUCTION

In 1966, early in their work, the research group of the Project for the Psychotic Deaf at Michael Reese Hospital (Chicago) began to discover correlations between early language deprivation due to strict oral education and later social and emotional problems in some of their patients.[2] Soon thereafter, the Michael Reese group added their voices to those already sounding objections to traditions in deaf education. Most deaf adults had long pleaded for change. So had some enlightened, but not very audible, educators.

Limitations in conventional social knowledge and impaired control over impulsive behavior occur among some deaf adults. Two primary settings where children acquire these skills — the home and the school — typically were oriented toward verbal language acquisition as the cardinal goal, a century old tried and untrue tradition. The acquisition of play and social skills and a flexible internal linguistic system either were considered as secondary goals, or were not considered at all. Deaf children seemed to be commodities utilized in the support of an educational system offering the greatest rewards to parents and teachers. The image of "self-sacrificing" parents and teachers slavishly extracting random phonemes from "deaf and dumb" children comes readily to mind, quickly followed by an image of sympathetic relatives and friends praising the effort.

In Metropolitan Chicago, the Michael Reese research group provided education and counseling to parents dissatisfied with gloomy prognoses and stifling pedagogism and willing to commit themselves to the task of changing reluctant school systems from oralism to total communication.

The deaf education practices within the Chicago school system have been the slowest to change, although this system has the responsibility for the majority of deaf children in the Metropolitan Chicago area. Unlike most children enrolled in the suburban programs, many of the city children are doubly burdened. They are both deaf and culturally deprived. The suburban areas have been more responsive to parental pressure and reasoned appeal. Here they have either switched to total communication completely or have effected compromises in providing oral classrooms for deaf children whose parents prefer them. The Chicago system has been strapped by an inept downtown bureaucracy. Although a few total communication classes are said to exist within the Chicago school system, parents have no choices; they are given whatever is available in the classroom closest to their home.

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[1] Views expressed in this article are those of the author. All are not necessarily shared by participants of the program described herein.

[2] Grinker, R.G., ed. 1969. Psychiatric diagnosis, therapy, and research of the psychotic deaf. Final Report Grant #RD-2407-S, Social Rehabilitation Service, Dept. of H.E.W. Available from Dr. Grinker, Michael Reese Hospital, 2959 S. Ellis, Illinois, 60616.

The Wilmot Program

In September, 1971, 20 deaf children began a new public, day-school total-communication program at the Wilmot (regular) Elementary School, Deerfield, Illinois. Now in its third year, this program's enrollment has increased to 50 children in pre-school through sixth grade classes. Five hundred normally hearing children attend the parent school. There are eight classrooms served by a staff of nine teachers, two aides, a full-time speech therapist, a two-fifths time learning disabilities teacher, and a teacher consultant. Ancillary personnel include a psychologist, a social worker, and a child psychiatrist — all three drawn from the staff of the sponsor, The Northern Suburban Special Education District.[3] Not all of the children in the program come from the district; children can also come from any of five nearby special education cooperatives in order to provide sufficient numbers for appropriate groupings according to age, degree of hearing loss, and educational needs. It is possible that this program will ultimately come under the aegis of a larger regional program. Regionalizing becomes necessary with fewer childen to serve within the separate cooperatives. Children deafened by the 1964-65 rubella epidemic will soon be in middle schools, and so no longer the responsibility of these elementary special education cooperatives.

I believe that public day school programs this large, with this felicitous combination of parent and teacher interest in total communication, are rare in the United States. Even more rare are special education programs with adequate ancillary personnel in the behavioral sciences.

All members of the staff and all of the parents believe that total communication in the classroom and the home offers the only real opportunity to bring the educational achievements of deaf children closer to those expected of normally hearing children. Total communication is defined here as the use of all available educative techniques for enhancing the exchange and acquisition of linguistic information. Included chiefly are manual communication (sign language)[4], fingerspelling, speech training and lipreading. By the time of enrollment in the Wilmot program, most children have been tested elsewhere to determine the nature of the hearing loss. Those who can benefit from their use, wear hearing aids.

The Wilmot program is supervised by the teacher consultant from the sponsoring special education district. In addition to handling administrative matters relating to personnel, program, and finance, she is the coordinator and liaison between all participants in the program. The teacher consultant, the social worker, and the psychologist work as a team screening children before enrollment and evaluating their progress as needed during their stay in the program. Thus, diagnostic services are available as an ongoing part of the educational process. More typical, however, is the situation in which school personnel have to solicit help from understaffed school districts or send parents hunting in the community. Teachers detecting problems can turn immediately to the consultation team and so keep their own attention focused on their student's education.

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[3] The Northern Suburban Special Education District (NSSED) is a special education cooperative comprised of the 23 individual school districts located in the area between Wilmette and Lake Forest along Lake Michigan and the more western towns in Glenview, Northfield, Northbrook, and Deerfield, Illinois. Classrooms, located in schools scattered throughout the area, are taffed by NSSED and given supportive services through it. In addition to deaf children, NSSED serves retarded children, emotionally disturbed children, and children with learning disabilities.

[4] There are different philosophies on the way to introduce sign language to young deaf children. For a discussion on the current controversy see Bornstein, H: A description of some current sign systems designed to represent English. American Annals of the Deaf 118:-454-460, 1973.

What I believe to be an unusual feature of this program is the acknowledged interdependence of these workers. Through frequent contacts between teachers and consultant staff, difficulties arising at the various interactional interfaces are promptly identified and discussed, and recommendations are made.[5] The social worker also engages in outreach work through home visits. Home visiting — an integral part of the original social work model — is seldom practiced nowadays. Yet, knowledge of the child's home life adds a particularly valuable dimension in understanding the deaf child. The psychologist serves as a tester, but her functions are not limited to this. She is available as a consultant on behavioral matters and conducts group sessions with teachers.

Psychiatric consultation is available one-half day every other week. Hopefully, this discussion demonstrates the necessity for a consultant to know a program in its entirety — a goal to be strived for but one never fully achieved. The consultant must be known to all members of the program. He or she is entering an educational process and serves to help the participants therein to function with an understanding of the context in which they operate — its psychodynamic underpinnings. Some of the relevant psychodynamic considerations are illustrated in the following discussion of the parents, the deaf child, and the teacher.

The Parents

Psychological reactions similar to those occurring at the time of discovery of disability in their child may rcur in parents when the child starts school. Any situation, in fact, which highlights the child's disability may cause an upsurge of similar feeling, even years later. Early in my work with deaf children, I had occasion to meet the founder of a well-known clinic for deaf children. As I listened to this woman talk, I became aware of depressive feelings in her very similar to those of young parents of the deaf children with whom I was then working. This was over 40 years after the birth of her deaf child!

It is helpful for teachers and other professionals who work with disabled children to understand the possible range, duration, and intensity of parental feelings resulting from having a deaf child. They can profoundly affect the way in which the parent is perceived by teachers and others.

Elsewhere, I have commented on the shock, the lost sense of well-being and optimism, and the mourning which follow the discovery of childhood deafness.[6] Mourning is usually a short-lived, self-limiting, psychological process. Certain people will react to childhood disability with pathological mourning — depressive affect (feeling), withdrawal of interest from people and work, slowed physical and mental activity, devaluation of self-worth, and, sometimes, hypochondriacal symptoms. People with non-pathological mourning can have similar characteristics but the intensity and duration of the symptoms are less. In ordinary mourning, people are more amenable to, and profit more from, conventional comforts to the grieving: e.g., cards, flowers, visits from friends and clergy. But, with pathological mourning, the comforter may experience a sense of futility that will prevent further efforts to offer comfort.

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[5] "Interactional interfaces" refers to a simple scheme of contact points between the various individuals within this deaf education system: teacher-parent; teacher-consultant; consultant-parent; consultant-child; teacher-child; teacher-teacher; parent-parent; consultant-consultant; deaf child-deaf child; deaf child-hearing child.

[6] Mindel, E.D. and Vernon, M. They Grow in Silence — the Deaf Child and His Family. Silver Spring: The National Association of the Deaf, 1971.

It is easy and tempting for friends, relatives, and teachers to accept a parent's self-comforting statements such as, "I went through a difficult period at first, but now I've adjusted to having a deaf child"; or, "I treat my deaf child just like any other child, so raising him has been no problem."

Parents and teachers often associate in organizations for deaf children. Though such efforts have resulted in the formation and maintenance of many excellent organizations, it is unwise to think of these activities as representing a consummate mastery over the disappointment of having a deaf child. We can contrast the parents who just work in organizations to improve the lot of their deaf child to those who *throw* themselves into the work. In the former, there is a calm ordering of one's life; in the latter, a quality of desperation, a "clinging to beliefs," a missionary or frenetic quality. Of course, the portrait of the latter individual is overdrawn and intended only to illustrate a possible trend in mastery over grief.

It is useful for teachers to understand the general tendency of parents to magnify the effects of a disability. They do not always know they are doing so. During an interview, an attractive young blind man told me of girls who want to go out with him "just to see if I can do it." He wondered why the presence of blindness seems "automatically" to suggest that he is unable to function adequately in other ways. At the conclusion of our interview, we had to move our chairs to another room. "Do you need help?", I asked him before catching myself. This young man is a competent collegiate wrestler. People are often surprised when they hear an individual with cerebral palsy speaking intelligently or realize that beneath the inarticulateness and nonconventional syntax of deaf people, there lies conventional capacity for complex thought and wisdom.

Parents may be under stress because of marital difficulties precipitated by having a disabled child. There is a higher than normal incidence of divorces in these families. Think of a mother and father who both feel stress from the disappointment over having a disabled child and the additional emotional, time, and financial burdens which that child creates. And imagine some of the complications that can arise in their relationship to one another. Aside from the sense of personal hurt at having a disabled child, they concern themselves with the child's education and future vocational adjustment, albeit often prematurely and unrealistically. Discipline, for example, becomes a special problem. Should the child be treated gingerly because he or she is disabled? Should he or she be treated as the siblings are? Should discipline be more harsh to make a point that can often be made with verbal admonishment to a hearing child? Mother and father can hold opposite views on these issues. Some of these problems will be carried over into the school where teachers may be expected to conform to disciplinary styles within the home.

Because a childhood disability introduces greater parenting challenges, there can be and often is a diminished sense of parental adequacy. Within a school, observations are made of the child on his or her potential for academic achievement.

Parents may depend upon a child's academic achievement to confirm their sense of adequacy or inadequacy. If the child is not achieving according to expectation, the parent will not achieve a hoped-for feeling of gratification over successful parenting. Needless to say, it is easier for a teacher to give a parent good news than bad news. The teacher operates under a parental mandate to help the child achieve academic success. The teacher can feel that failure to achieve in school will reflect badly on his or her performance and cause strained relations with the parents and school administration.

As a child is sent off to school, parents can be feeling guilty over "wrongdoings" in raising their child. They can derive reassurance from the thought that the child is having a positive experience while in school to offset a bad one at home. "Your child seems happy," or "plays well," or "learns well" are comforting words.

The Deaf Child

In the preceding section on the parents of deaf children, I discussed the enduring effects of shock and mourning on the way in which the parent is perceived by others. In this section, I will discuss some things which influence the perception of the deaf child.

Having observed the phenomenon many times, I have concluded that the uninitiated are generally uncomfortable in the presence of deaf people. This discomfort long has negatively influenced the attention given to deaf people by school administrations, the medical profession, the media, and others. Rather than seeing deaf people as having legitimate and discrete personalities, they have been seen in terms of their potential to conform to the verbal capacities of hearing people.

Perhaps I should leave this phase of the discussion with the conclusion that hearing people are uncomfortable with deaf people simply because ordinary communication is not possible My strong feelings on this issue, however, prevent me from moving on without first applying the psychiatrist's probe.

Deaf children can be like a projective symbol (like a Rorschach inkblot); they can be like a *tabula rasa* upon which the hearing person's personality is projected. A personality structure different from hearing children and a reduced conventional capacity to communicate leave more to the hearing person's imagination. As with projective symbols, people may be stimulated to reveal more about themselves. This can mobilize anxiety, anger, or depression. People can thus become annoyed with the deaf child; annoyance breeds avoidance.

The deaf person's need to use his or her body for communication purposes beyond that which is ordinarily expected contributes to the discomfort. The use of the body in ways out of keeping with social codes may be considered foreign, or a sign of low-breeding. At a more primary level, it may suggest dirtiness or have forbidden sexual connotations. A body-based language reveals "too much" about a person. What thoughts do we keep private — dirty, peculiar, or erotic ones?

Deaf children enter school inarticulate and imperfectly socialized, ill-equipped to order their lives advantageously. If they are unsuitably placed in the classroom, as they often are in oral classrooms, they can only protest effectively in the least acceptable way, through physical display rather than verbal protest.

In school, the deaf child seeks intellectual and social stimulation just as any child does. Often, however, the child serves as the "substantiator" of a particular educational methodology. This is most evident in oralism but is far less so with total communication where the use of all modes of communication allow a creativity in educational technique; with it, education can conform to the child's responsivity and capacities. The child is not forced to conform to an educational system preordained as appropriate with little regard for individual differences.

The deaf child, a *tabula rasa* as defined above, with delayed and possibly never to be achieved articulateness and an inclination toward the use of impulsive outbursts for expression, has been fair game for those interested in training (and taming?) rather than educating. A total communication system, working effectively, tolerates an open-ended education process. Each deaf child's personality can be viewed as a separate entity, not as conceived in the image of a methodology.

The grief of the parent over the birth of the deaf child is not congruent with the child's feeling about himself or herself. To paraphrase Freda Norman, an actress with the National Theater of the Deaf, "I am deaf, deafness is me." The deaf child does not experience himself or herself as a person who has lost his or her hearing, but, rather, develops a personality organized around the intact senses.

How can the school assist in the development of the deaf child's identity? Within a school unit containing adequate numbers of children over a typical elementary school grade range, deaf children experience themselves as members of a group of similar children. Within his or her classes, the focus is on communicative and social strengths because the child is not surrounded by other children always more adept at social skills and/or verbal language.

Teachers of disabled children often express concern for the isolation of their students. Usually there are only one or two special education classrooms in the parent school and ten or fewer children per class. Integration or reintegration into regular classes is attempted as soon as possible to overcome the sense of isolation and difference among these children. But, with profound hearing loss, the natural peer-to-peer learning is reduced as is social learning in the family. Thus, decisions on reintegration must be made more carefully. For a profoundly deaf person, friends will be found among those with whom he or she can most easily communicate — namely, deaf *and* hearing people who use total communciation.

Considering deaf children as children with expertise in total communication grants them a positive school identity;[7] considering them as children who must resort to non-verbal communication gives them a negative one. The latter is more in keeping with the traditional "deaf-mute" orientation.

An educational program built around what a child is rather than around what he or she *is not* will help to create a positive identity. This positive identity forms the stable core that a child carries into unfamiliar situations. For the deaf child to enter regular classrooms feeling that other children have naturally something that he or she spends his or her life achieving immediately stacks the cards against that child. Conversely, entering with the sense that he or she has an identity as a deaf child with an expertise in total communication asserts difference without the implication of inferiority.

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[7] With no pretense of comprehensiveness implied, identity is considered to derive from the internalization of social transactions primarily in the home and secondarily in the community. The school is the most significant community facility in the young child's life. The child's contribution to the social transactions derives from his or her emotional, intellectual and physical endowments. For a comprehensive discussion of identity formation see Erikson, E.H. Childhood and Society. New York: Norton, 1963. Schlesinger has adapted Erikson's formulations to issues in the development of the deaf child. (Schlesinger, H.S. and Meadow, K.P. Sound and Sign. Childhood Deafness and Mental Health. Berkeley: University of California Press, 1974)

The farther from urban or suburban areas with high population density families with deaf children live, the harder it is to achieve optimal groupings. For many children, the residential school is preferable. Ideally, such schools should be near enough to the majority of the families they serve to allow the children to go home on weekends. This prevents over-institutionalizing the child's personality and alienating him or her from the family.

The Teacher

An optimal distance should be maintained in the relationships between teachers and the families of their students. This statement is intended as a guideline and not a maxim. Many factors, however, influence what constitutes the optimum. I can explore only a few here.

Possible relationships vary over a range from cool objectivity through friendship to over-involvement with child and/or parents. Friendship tends to blur objectivity. In friendship and love, the closer we get, the less we perceive accurately and the more we feel. Emotional dependence can push people toward friendship in situations where otherwise it might not occur. In the film *The High and the Mighty*, passengers on an airliner, confronted with their imminent demise, revealed aspects of their lives and personalities which, without the emergency, would have remained private. This situation, though seemingly far removed from the present subject, illustrates an important point. Stress forces us to reveal things about ourselves which generally we keep private or confide only to trusted friends. Sometimes, having confided, we become concerned over repercussions: "What will X think and how will he act now that he knows Y about me?"

I suggest that the distance between teacher and parent that is comfortable in conventional school settings, and usually is easy to maintain because it is expected on both sides, is somewhat reduced in a school for handicapped children. These teachers should be comfortable with a lessening of distance in the relationships when more private feelings are exposed. The depressive feelings on the part of the parent, discussed in the previous section, can edge teachers and parents closer to each other. The teacher cannot be expected to do the work of the mental health professional, however. It is the job of the latter to assist the teacher to understand just when he or she can no longer be of help to families and they should seek consultation. In the Wilmot program, the teacher is encouraged to turn to the consultation team for this guidance.

Aside from the emotional dependence on teachers, which the feelings over having a deaf child creates, there are other issues related to classroom organization and teacher identity that can cause tension. For example, in some preschool classes where spontaneity is valued, a parent may find it difficult to discern the educational purposes. A skillful teacher knows how to create a smooth blend of play and readiness skills to enhance the pleasure in learning. Given parental concerns over the child's ultimate educational attainments, a more casual open-ended classroom may be seen by them as not providing sufficient educational input. Such parental concern may surface first in the form of insistent questions and later, perhaps, as open criticism.

The community identity of teachers is evolving rapidly. It is my opinion that most parents still perceive teachers as having not only a certain educational expertise, but also having an authoritarian position beyond that expertise. Teachers can extend their influence beyond the space and time dimensions of the school and school day. The child can be kept after school, given homework, taught things that may conflict with attitudes at home, and reaffirm or have challenged his or her sense of self-esteem. A child's sense of self-esteem, like other emotional issues, can influence adaptation in many areas. Poor social or academic achievement in school can easily lead to crankiness, poor peer relationships, disobedience at home, nightmares, and so on.

The sense of the teacher as expert and authority gives the parent assurance that the right things are being done for the child. With an erosion of that sense, a teacher can be seen in the light of what he or she is not doing rather than in the light of his or her strengths and capacities. Most of today's parents probably attended schools in which teacher authoritarianism was expected. In many of today's school settings, operant social forces tend to equalize the teacher-parent roles. Since we most often seem to operate on the basis of behavioral patterns derived from our past experiences, rather than on current formulations, there can be a conflict between how the teachers really function with regard to authority, and how parents expect them to function.

One final factor, worth mentioning now, is a tendency in some parents, some teachers, and some institutions to place blame for failure outside the individual or system rather than where it belongs. Instead of looking at the aspects of the individual parental personality or marital problems that contribute to a child's adaptational problems in school, the parent may blame the school. And, rather than looking at programs and attitudes within a school that may be contributing to a child's failure to achieve, school personnel may blame the parents. In education of the deaf, oralists have long blamed parents for the failure of children to achieve adequately within that system of education. When confronted with the child's failures, one commonly hears these adherents saying, "But the parents didn't work hard enough with the child at home." After the heavy commitment of time and money the parents make, this is a bitter pill for them to swallow.

The social and intellectual disability of the deaf child is limited communication. That disability should not extend into the teaching and consultation. Smooth, effective communication is essential among staff members, parents, and children. Understanding how various participants in a deaf education program can be perceived ensures the separation of emotional and educational issues.

COMMUNITY SERVICES FOR THE DEAF

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"Community service" is a catch-all phrase describing a wide variety of services available to the general population through public agencies and service organizations. It is intended to alleviate social problems beyond the scope of traditional education and rehabilitation programs. Various agencies focus on myriad specific problems, but the ultimate goal of community services is a greater utilization of human potential.

The pressures and problems arising in modern society that cause people to seek out routine services bear equally on deaf people who, in theory, have the same recourse to public agencies' services as do the hearing. The adequate delivery of these services hinges, however, on the ability of the deaf person to locate the appropriate agency, to express his needs and to understand what he is told. The enormity of his communication disability frequently precludes any possibility of his receiving satisfactory service.

Deaf people constitute a minority group with unique needs seldom recognized by community workers who deal, by and large, with a non-handicapped population and who lack the resources and communicative skills to counsel the deaf. The severe deficiencies in language and speech with which many deaf people are afflicted frustrate their attempts to communicate vocally or even via paper and pencil. The resulting communicative and sociological isolation can be relieved only by the provision of special services and interpreters so that deaf people can have equal access to the community resources that can contribute to their well-being.

An early, and recurring, criticism of the concept of providing special services for the deaf has been that it fosters dependency attitudes among deaf clients. This criticism appears substantiated by the observation of some community worker that once special services are made available, deaf people prefer to be serviced by them exclusively rather than to utilize existing public agencies with the assistance of an interpreter. It is true that efforts to deal independently with such agencies frequently result in bitter frustration, and that deaf people then resort to seeking services from schools and churches for the deaf, from neighbors, and from family members, with limited or ineffectual assistance. Nevertheless, the sense of relief the deaf get from, and the consequent preference for, professional services tailored to their needs is psychologically apt. Roger Falberg has observed that problems do not spring up only where there is a special social service; actually they have been there all the time, but professional service has not been available. All existing services stress their efforts to achieve a state of self-sufficiency in the individual client.

During recent years attempts have been made to provide community service centers in several cities. The honor of being "first" goes to the Wichita Social Services for the Deaf, now known as Deaf and Hard of Hearing Counseling Service, Inc., of Wichita, Kansas; it opened its doors in 1959. A United Fund agency, its organization includes a Board of Directors, an Executive Director, Community Worker, and Secretary who strive to make the agency "the center of help for all deaf and hard-of-hearing children, teenagers, and adults in this area who have special problems." Its services include: personal counseling; manual interpreting for the deaf (doctors, courts, meetings); information about deafness; budget management aid; vocational counseling and job placement; library; counseling for parents of deaf children; sign language courses; community relations; hearing aid fund; scholarship fund; captioned movies; teletypewriter service; meeting room; referrals; monthly newsletter; and hearing aid information.

In 1966 an ambitious research and demonstration project of the Pittsburgh Hearing and Speech Society and the Western Pennsylvania School for the Deaf undertook to demonstrate the effectiveness of a comprehensive counseling and referral service for deaf people in a metropolitan area. The purpose was not to duplicate the services of existing agencies, but to establish an effective working relationship between the center and all appropriate local community services and to provide consultation and professional advice to these agencies in matters pertaining to the welfare of deaf clients. The Counseling and Community Services Center for the Deaf of Pittsburgh has since become a model for replicative services now available to the deaf of cities as far-flung as Dallas, Providence, Indianapolis, Kansas City, San Diego, Flint, and others. The positive impact of these programs upon deaf citizens in the communities they serve fully justifies the establishment of similar service centers in most major cities.

The above statement needs modification in that not all major cities have sufficiently large deaf populations to warrant full-scale provision of services. A service operating out of Providence, Rhode Island, can be state wide in scope with no more than a director, an assistant, secretarial help, and an array of interpreters "on call." Another operating in Indianapolis with a comparable staff, cannot cope beyond the city's suburbs. Either additional staff is required to travel upon demand to outlying districts, or regional service centers must be established. Where multiple service centers are required within a given state, a central office to coordinate their efforts is crucial to their effective functioning.

This situation illustrates the current state of disparity regarding community services for the deaf. While citizens of a very few communities enjoy the benefits of comprehensive services, the vast majority of the deaf are still aching for assistance and guidance. From time to time a specific need is recognized, and the country is sprinkled with stop-gap solutions to such problems. In very few areas is there any coordinated effort to consolidate services. Since they concern an extraordinary variety of problems, the availability of a professional person to "bring it all together" is essential to the effectiveness of services for the deaf. These services may include:

Counseling and Referral. The agency will listen to any problem confronting a deaf person, provide professional counseling, or exercise its best judgement in making referral to an appropriate agency that offers interpreter service. The agency does not close the case after making such a referral, but keeps it open for helpful communication with both the client and the referral agency until the problem is resolved.

Placement and Guidance. A decreased emphasis upon vocational training within schools for the deaf has resulted in an increased number of school-leavers with no particular vocational direction and an intensified need for individualized career counseling. Post-secondary placement in jobs or training programs for the deaf demands the expertise of a counselor who is sensitive to the client's aptitudes and abilities (as well as his limitations) and is knowledgeable with respect to programs geared to the needs of the hearing impaired. Job dissatisfaction and underemployment are also aspects of placement and guidance with which the center may be asked to deal.

Health. The doctor who relies on his deaf patient's ability to lipread is common to the point of tragedy in respect to the anxiety he generates. In no area is clear communication so imperative to the client's well-being, yet few doctors, and fewer hospitals, are prepared to utilize interpreters to ascertain that deaf patients understand their medical problems, the treatment in progress, or the prognosis. Social services can provide for such assistance and, equally important, locate appropriate other services when psychiatric assistance is called for.

Professional workers with the deaf are increasingly aware of their clients' need for mental health services; in perhaps no other area is there so conspicuous a dearth of available programs. St. Elizabeth's Hospital in Washington, D.C., has developed a comprehensive program for the deaf under the competent direction of Dr. Luther Robinson; it also has developed incredibly long waiting lists for admission. That American psychiatry has been derelict in the past in its consideration of deafness certainly does not justify its continued apathy in view of the pressing needs of deaf people today.

Legal Aid. Inevitably, some of the problems with which deaf people are confronted are legal or quasi-legal in nature. Except where comprehensive centers for the deaf are available, the deaf frequently flounder about with, at best, the assistance of a well-intentioned relative or friend who is more inclined to "take over" than to interpret legal counsel. Police officers too often are uninformed and unsympathetic to deaf persons with whom they must deal. A great deal of public relations groundwork remains to be done in this area.

Teletypewriter Answering Services. Most centers for the deaf provide TTY answering services, at least during office hours — which is to say that they will relay a call, return a message, or make an appointment for deaf persons upon request. In other communities arrangements have been made so that in an emergency the police or fire department can be reached via TTY. At least one community maintains a "hot line" for potential suicides. Occasional efforts have been made by groups of deaf individuals to establish answering services, but most have foundered upon operating costs; the deaf are not willing to pay a sizeable additional monthly charge for the sake of emergency calls they may rarely or never make.

Television. Nowhere, perhaps, does television live up to its absolute potential as a service to the deaf community. Special programs are offered sporadically, but remain a novelty. A few minutes of signed news is presented in some places daily and is appreciated — witness the tremendous response to five minutes of news in Ameslan offered in the San Francisco Bay area — and recent efforts at captioning a half-hour late evening news show have elicited much enthusiasm from the deaf on the east coast. Emergency bulletins continue to frustrate with uninformative symbols; weather information is not uniformly available; the concession granted by some broadcasters of the announcement added to emergency warnings. "If you have a deaf neighbor, see that he is informed," has become a bad joke — no neighbor bothers. Public television is largely derelict in its duty to serve the hearing impaired. For this problem, centers for the deaf can provide liaison and serve as sources of information and gadflies for broadcasters.

Housing for the Elderly. Senior citizens in general are shamefully served in too many parts of our country and deaf senior citizens even more shabbily. Not being able to use the telephone, they lack access to such programs as "meals on wheels," special bussing for the handicapped, and others, and generally are unaware of their rights to public housing. (Federal housing projects for the elderly, for example, operate under regulations providing that five per cent of the total units be made available to handicapped people; and rent monies can be matched by state and/or federal funds in cases where the handicapped person's income is inadequate to rental charges.) A center for the deaf can press for enforcement of such regulations; the deaf individual usually does not know where or how to begin.

Continuing Education. Courses offered by the Red Cross, gas and electric companies, Y.M.C.A., libraries, churches, and ethnic groups are open to all — except the deaf, for whom most such courses are exercises in futility. Gallaudet College's recent experiment with community education indicates how grossly untapped an avenue of expression is thereby denied the hearing impaired. Yet, when attempts are made to open up these resources to the deaf, they are frustrated — the state education agency will fund only Adult Basic Education courses, which have little drawing power; and Vocational Rehabilitation agencies can underwrite only courses leading to employment. Who will sponsor interpreters and teachers for courses offering "only" the opportunity for individual growth and enjoyment?

Drop-in Centers. Virtually every large city has a club for the deaf. Too often it consists of a place where deaf adults can meet to have a drink, play cards, and keep abreast of the local basketball team. Rarely are appropriate activities for teenagers or senior citizens provided, yet no more attractive opportunities to gather together are available to either group.

It is unfortunate that so many residential schools for the deaf close their doors to the adult deaf in their communities, although the facilities are there and often unused during the evening hours. It would be helpful if more would follow the example of the Governor Baxter School in Maine, which sponsors social affairs, captioned films, and occasional lectures that interested members of the deaf community are welcome to share.

Half-way Houses. Increasing attention has been focussed on two hapless segments of the deaf community — persons who have been institutionalized in state hospitals for the retarded, aged, or mentally incompetent (sometimes for no better reason than that they are deaf), and "low-verbal" individuals who cannot function with total independence within the larger community. The need is pressing for half-way houses to provide a transitional home for those who require a long-term adjustment and training period to learn to cope with independent living within a community. This fact has been recognized by community workers for some time, and provision for the establishment of such domiciles was included in the ill-fated Vocational Rehabilitation Act of 1972. Unfortunately the President's pocket veto failed to eliminate the need, and unless we are to accept the senseless waste of human resources that results from shunting these people into institutions, some way must be found to establish half-way houses.

Information. Where community services for the deaf are provided, directors and personnel generally find themselves heavily involved in public relations activities as an inevitable corollary to their efforts. The very existence of such an agency encourages other agencies and professionals to consult it when questions concerning deafness or deaf people arise. Parents of deaf children are becoming more insistent in their quests for information, and increasingly are less willing to accept blindly the opinions of school authorities. Inquiries come from news media, service organizations, and individuals seeking information about deafness. In time, these and related information-sharing activities can do much to increase the "visibility" of the deaf.

While the need for community services for the deaf is obvious, it is equally clear the someone has to sponsor and fund them. Existing services have evolved from recognition of need by various persons and groups who were sufficiently concerned to make an effort to initiate and launch experimental programs. Church groups, hearing and speech associations, schools for the deaf, and vocational rehabilitation agencies typify originators of community services. Their major problem is funding. Some have begun with government grants as research and demonstration programs; others achieved support from a religious denomination; some enjoy United Fund financing; at least one relies exclusively upon support of a state department of education. The Counseling Center for the Deaf in Pittsburgh, founded upon a federal grant, has since developed multiple sources of support: a county mental health/mental retardation program provides part on a fee-for-service basis; the Center has a contract with the state to provide services for deaf welfare recipients on a 75/25 matching basis; the United Fund and Department of Public Assistance contribute substantially; the Bureau of Vocational Rehabilitation purchases services from the Center; as a psychiatric out-patient clinic, it bills the state for clients who are on medical assistance; and the Center has entered into three-party contracts with other agencies. This example suggests that the qualities demanded of the director of such a program include resourcefulness, obstinacy, and endurance.

Deaf adults are beginning to recognize that they possess human and civil rights, and to press for them. There is no denying that the range of community services currently available to them is inadequate and inequitable, and the demand for more realistic programs is certain to grow. In most states a hard look at local services to determine their adequacy to the needs of the deaf community is much to be recommended. Although the obstacles to satisfactory services for this population can be great, they must be overcome if we are to avoid regressing to institutionalization at one extreme or, at the other, to denying society's benefits to people who happen to be deaf.

MULTIPLY HANDICAPPED DEAF PERSONS

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A significant percentage of deaf youth and adults have some other major handicap in addition to their hearing loss. For example, approximately three % of the genetically deaf eventually become blind (Schwartz and Vernon, 1974). Cerebral palsy afflicts 4.7% (Vernon, 1969). Naimen, *et al.* (1973) estimate that 10% to 31% of deaf children are emotionally disturbed. Despite the magnitude of the problem, deaf multihandicapped individuals are the most neglected minority in our country today. The problem is compounded because these people have widely divergent needs. In fact they often have nothing in common with one another except deafness.

This heterogeneity of multiply handicapped deaf people contributes to the existing lack of services. Subgroups such as the cerebral palsied deaf, the deaf-retarded, or the deaf-blind are but tiny segments of the population within which are widely varying needs. Consequently they are often lost in the shuffle of determining priorities for services in government and even in organizations serving the deaf.

Obviously the only problem shared by all multiply handicapped deaf individuals is difficulty in communication due to their hearing loss. This crucial commonality is almost universally overlooked. Thus, mentally ill deaf people are "treated" in facilities for the normally hearing by therapists who know no manual communication. The deaf-blind are seen by professionals in blindness who do not know sign language. The point to be made is that any effort in rehabilitation which fails to account for the communication issue neglects a major aspect of the situation it intends to resolve. There also are no hard data on how many deaf persons have significant other handicaps.

Lack of Action

What is being done to meet the needs of multiply handicapped deaf people — next to nothing. The token action and financial support provided result in an ant hill of services, research, and training where a mountain is needed. For example, there is not a single institution or comprehensive program devoted to the rehabilitation of multiply handicapped deaf adults. Not one university trains teachers to work with the emotionally disturbed deaf (Naimen, *et. al.*, 1973.)

Lack of "hard" money is a key issue in this appalling inaction. For example, such fundamental services as vocational-technical education, provision of comprehensive facilities for low achieving deaf persons, mental health treatment, and professional preparation have been supported primarily by short-term grants and other temporary "soft" money sources. Waste, inefficiency, and instability inevitably result from such funding. Long range goals, unremitting (longitudinal) research, and sustained fundamental services become non-existent when services are on "soft" money. The most glaring example of this problem occurred at the Arkansas Rehabilitation Center where the first program ever established to rehabilitate deaf, multiply handicapped persons was established. Despite its difficulties, Arkansas did an outstanding job in a previously untouched area. Yet the moment federal grants began phasing out, disintegration set in and the program has now collapsed. This is but one of many illustrations of the need for "hard" money financing of these services through federal and state legislation as contrasted with temporary grants and demonstration projects. Key services must achieve a permanent, federally legislated, financial status if they are to survive and function adequately.

Purpose

In the light of the present grave situation, the task here is to examine the problems and needs of those deaf individuals who have different types of additional handicaps, and to recommend possible actions in terms of services and prevention.

Culturally (Educationally) Deprived

In a country of advanced technology and increasing educational demands, cultural and academic deprivation is clearly the most prevalent, overlooked, and tragic additional handicapping factor in the deaf population. Despite the deaf population's normally distributed range in intelligence (Vernon, 1968) and in capacity for abstract thought (Rosenstein, 1969; Furth, 1966; Vernon, 1967), the achievement levels of deaf school leavers are a national disgrace. Statistics reveal that 30% are functionally illiterate and only 3% to 5% achieve a tenth grade level. Of those leaving school, 60% are at grade level 5.3 (Boatner, 1965; Kronenberg, 1966; McClure, 1966). The average reading gain for deaf students from 10 to 16 years of age is eight months as measured by standard achievement tests (Wrightstone, *et.al.*, 1963). The Babbidge report and other studies further support these data (Babbidge, 1965, Office of Demographic Studies, 1971).

In addition to deficient education, the deaf person's communication problem causes gross gaps in the cultural information he assimilates. Efforts at forcing "oral only" approaches on deaf youth and their families frequently result in alienation of the deaf child within his family. Consequently, immeasurable deprivation and suffering in terms of psychological, familial, social and spiritual learning results.

A recent Chicago study revealed that only a minority of deaf students in urban oral educational programs ever graduate. The majority are forced out of the system at ages 14 to 17, functionally illiterate, unable to speak, lipread, or use the language of signs (Grinker, 1969; Vernon, 1970a). Obviously, these individuals are totally unprepared to lead a productive life in our society. Just coping with the inevitable failure is a tremendous psychological burden. Indeed, many become "social isolates" or remain totally dependent on others for sustenance.

Recommendations: Comprehensive centralized programs that can provide educationally deprived deaf persons remedial education, vocational training, and personal adjustment therapy are essential. None now exist. Fluent skill in manual communication is an essential qualification for professionals staffing these facilities. Relative to prevention, the top priorities are total communication, parent counseling, and an improved educational approach.

TABLE I

Studies of the Educational Achievement of Deaf Children*

Investigator	Sample	
Boatner (1965) and McClure (1966)	93 percent of deaf students in U.S., age sixteen years or older	1) 30 percent functionally illiterate 2) 60 percent grade level 5.3 or below 3) Only five percent achieve at tenth grade or better and most of these are adventitiously deaf or hard of hearing
Wrightstone, Aranow, and Moskowitz (1962)	73 school programs for deaf representing 54 percent of deaf school children, ages ten to sixteen	1) Average gain in reading from age ten to age sixteen less than one year (0.8 months) 2) Average reading achievement of sixteen year olds was grade level 3.4 3) 80 percent of sixteen year olds were below grade level 4.9 in reading
Schein and Bushnaq (1962)	Gallaudet College population and estimates of other deaf college students	1) 1.7 percent of deaf school age population attend compared to 9.7 percent of hearing school age population
Babbage Report (1965, p.23)	269 schools and classes, 23,330 deaf children, 76 percent of deaf school age children (90 percent of residential school pupils and 57 percent of private residential pupils. Day classes and schools not represented)	1) Median average on Stanford of school leavers is 5.9 2) 13 percent of students "left" at age sixteen or before 3) About three percent were denied admission 4) Waiting list for residential schools was 3.6 percent of enrollment, for private school 48.5 percent

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* This table from Mindel, E. and Vernon, M. *They Grow in Silence,* (1971), p. 91.

Total communication has been demonstrated to be a far superior educational approach capable of reducing current academic deficiency and the overall cultural deprivation. Counseling with parents is imperative since parental failure to cope handicaps a deaf child more than deafness itself. Also, the professional incompetence and inadequate service that have contributed to this failure, must be remedied.

Work-study programs and comprehensive integrated vocational-technical instruction must be provided for deaf students in top-notch facilities for hearing persons. Most of all, more programs for the non-college bound individual are vital. Moreover, the existence of these services must be communicated to the deaf people in need of them. Little benefit is derived otherwise. For example, in most urban areas inner city deaf youth have no concept of the post secondary programs available to them through the Division of Vocational Rehabilitation.

Non-White Deaf: Additional Disadvantages

The non-white deaf struggle daily with a double stigma. Not only do they face the discrimination which accrues to deaf people in a hearing world; they also experience educational, psychological and occupational problems due to their color and ethnic difference (Bowe, 1971). Even in the deaf community, there has been relatively little integration of blacks. Some states still maintain two separate schools for the deaf with the blacks often being relegated to the smaller, older, and less well equipped facility (Bowe, 1971). Social clubs for the deaf are often open only to whites (Schein, 1969).

Anderson and Bowe (1972) cite the immense educational problems that beset the black deaf child. The urban schools they attend are generally grossly inferior to the more modern schools of the suburbs. The undereducation of their black parents, themselves often victims of discrimination and broken homes, compounds the problem of psychological and academic growth of non-white deaf youth. Inadequate preparation and subsequent lack of readiness for reading and language often confront the child entering school.

Limited contacts with professionals and the deaf community frequently leave the youth's parents with a lack of information about available services. The school system may then accentuate the burdens of the non-white deaf. For example, most schools for the deaf ignore minority group studies which could aid the development of self-concept in the black deaf child. All of these circumstances contribute greatly to society's rejection of non-white deaf. For, as Bowe has said, "It is cause for concern that extensive apathy and indifference continue to exist among professionals and laymen alike with respect to gross undereducation, mass underemployment, and severe isolation of blacks who are deaf" (Anderson and Bowe, 1972).

Recommendations: Comprehensive programs in which non-white deaf children from undesirable home situations are able to leave the ghetto and attend integrated residential schools or practical vocational education programs supported by "hard" money are suggested as one possible alternative. These programs must provide language oriented environment with educational and personal adjustment training. Appropriate changes in teacher training are essential to enable teachers to more fully comprehend minority group problems. As projections for the future show, there may be an increasing number of less academically oriented students (Vernon, 1969). Therefore, more technical vocational education at the skilled and semi-skilled level must take priority.

Deaf-Blind

Today, an increasing number of deaf youth are afflicted with one or more additional physical disabilities. The deaf-blind, the brain damaged (including those suffering from cerebral palsy, aphasia and other learning disabilities) and other physically disabled deaf persons comprise this group.

One of the most handicapped groups are the deaf-blind. The leading cause of this condition is Usher's syndrome, a genetically inherited disease involving congenital deafness and progressive blindness due to Retinitis Pigmentosa (Vernon, 1969). Symptoms of Usher's syndrome include night blindness, a gradual narrowing of visual field and eventual loss of sight (Schwartz and Vernon, 1974). The second leading cause of deaf-blindness has been rubella.

A key issue in combatting deaf-blindness is ultimately not services (although they are needed at present), but prevention. This is possible to a large degree. The incidence of rubella is being reduced by vaccine. The number of cases of Usher's syndrome can be lessened through early diagnosis followed by genetic counseling. However, there is an appalling lack of information on the part of medical and educational personnel concerning this condition. Consequently, some families, not realizing the probability that they will have additional deaf-blind children, continue to have offspring. For example, in one family of 13 children, six were found to have Usher's syndrome.

At present, available services for the deaf-blind are far behind those indicated by diagnosis as desirable. Many facilities will describe the problem but none are currently providing meaningful programs for these people. For example, the news that one will lose his vision is traumatic to the deaf person used to depending upon vision as his sole source of communication. Counseling, though often essential, is rarely available. The family also needs not only the information that the condition is hereditary, but counseling on how to deal with their feelings and with the reality of coping with a deaf-blind person in the home.

Thus, early diagnosis is essential in terms of genetic counseling and prevention.

Recommendations: A high-priority need is the employment of more professionals trained especially to work with the deaf-blind, and of deaf-blind people, themselves, who have lived with deafness and the ensuing progressive blindness. Individuals who have experienced deaf-blindness and are successfully coping with their situation are in an excellent position to aid others like themselves. Yet, at the National Center for the Deaf-Blind, not one blind person born deaf is working with the deaf individuals who become blind, though a few such persons are available and seeking employment.

Brain Damaged

A large percentage of multiply handicapped deaf persons suffer from brain damage. Due to the interrelation and interfunction of the brain and behavior, damage to any area of the brain is apt to affect physical, intellectual, emotional, and social functioning. Unfortunately, four of the five leading causes of deafness are conditions which are also leading etiologies of brain damage (Vernon, 1969). For example, research had revealed that over two-thirds of children deafened by complications of Rh factor and premature birth have at least one other major handicap, such as aphasia, cerebral palsy, or emotional disturbance. One-half of the rubella children have more than one handicap (Vernon, 1969).

Due to advances in medical science, the incidence of brain damage to deaf persons may decrease. A case in point is that the elimination of complications of Rh factor is now possible, though this depends on good prenatal care. On the other hand, brain damage due to prematurity may increase due to higher rates of premature infant survival. Many of the surviving infants have central nervous system damage. Thus, in addition to auditory impairment, behavioral and learning problems are common among deaf children born prematurely. Therefore, the overall findings concerning the changing etiologies of deafness suggests the probability for the future of a population of less academically capable deaf youth (Vernon, 1969).

Cerebral Palsy

At present, little is known about the cerebrally palsied deaf person, and services are lacking. Of the five major etiologies of deafness, four of these are often associated with cerebral palsy resulting in about 4.7% of deaf people being cerebral palsied. This is 15 to 17 times the expected ratio in the general population (Vernon, 1969). However, although prematurity will continue to cause some incidence of cerebral palsy, the overall outlook is bright for the prevention in the future.

Recommendations: In terms of habilitation, the following are needed: (a) thorough medical, audiological, and psychological exams beginning in infancy, (b) correction or modification of additional problems such as visual and perceptual defects, (c) parent counseling to aid families in coping with deafness and the additional disability, (d) workshops to train physical and occupational therapists to work with deaf children, (e) development of educational programs specifically designed to attend to the cerebral palsied deaf child's needs so that he may achieve his potential, and (f) vocational rehabilitation focusing on job placement. Though more than 80% of the cerebral palsied deaf are of broadly defined normal range intelligence, unemployment figures are shockingly high (Crothers and Paine, 1959). Contributing to the problem are poor or non-existent counseling, wrong public attitudes, and lack of information on the part of employers concerning the capabilities of these persons. Therefore, while recommendations center on prevention and correct diagnosis, habilitation services are essential at present.

Aphasia

Aphasia, or aphasoid involvement in deaf people is difficult to diagnose. It is best defined as a marked difficulty with language greater than expected due to deafness or level of intelligence. The condition is usually attributed to an organic lesion and consequent damage in the brain itself. Etiologies of deafness known to cause aphasia are Rh factor complications, prematurity, meningitis, and rubella. Incidence in a recent study revealed that 16% to 36% of the persons in these etiological groups had an aphasoid condition (Vernon, 1969).

Thus, in these cases, there is the crippling language handicap of deafness compounded by the language impairment of aphasia. Unfortunately, oral deaf education has compounded the deaf aphasic's situation in that the child has been expected to learn only through lipreading, speech, and amplification.

Recommendations: Clearly, total communication is needed to allow aphasic deaf individuals to develop language/capability.

Learning Disabilities

Learning disability is a catch-all, waste-basket type term which includes learning problems that cannot be accounted for on the basis of mental retardation or some obvious physical problem such as blindness. It overlaps a number of the categories discussed above such as aphasia and brain damage. The point to be made here is that within the deaf population learning disabilities are more common than they are in the general population.

Recommendations: Diagnostic and remedial techniques from the field of learning disabilities in general need to be adapted to the education and rehabilitation of deaf persons.

Other Physical Disabilities

In addition to the multiple handicaps already discussed, other physical problems are associated with deafness. For example, among the genetically deaf are found defects in external ears, skin diseases, problems of pigmentation, cardiovascular system pathologies, skeletal system defects, visual disorders, nervous system diseases, kidney abnormalities and thyroid problems, among others (Vernon, 1969). Secondary abnormalities may also be caused by conditions such as rubella, premature birth, meningitis, or complications of Rh factor. Orthopedic defects, heart disorders, congenital hernia, underdeveloped sex glands, epilipsy, and diabetes are a few examples.

Recommendations: It is essential that architectural and equipment modifications be made for the orthopedically handicapped, especially in schools and rehabilitation facilities. Services for the remediation and correction of physical problems should also be available in these settings.

In terms of genetic deafness and its associated abnormalities, there is an appalling lack of information on the part of professionals in rehabilitation medicine and deaf education. To the authors' knowledge, there is no school or rehabilitation center in the United States which has an adequate genetic screening and counseling program. Most have none at all. However, facilities serving deaf people need to become aware of the probabilities of additional handicapping conditions such as Retinitis Pigmentosa and kidney disease. Individuals with syndromes having these associated abnormalities require careful medical supervision and rehabilitation programs designed to accomodate both deafness and their secondary problems.

Emotionally Disturbed

Authors Naimen *et al.* (1973) have concluded that the problem of emotional disturbance has reached epidemic proportions. Indeed, they cite recent studies which show the prevalence rate for emotional and behavioral disorders among deaf children to range from 10% to 30%. Youth in need of psychological or psychiatric help are dropped from school due to their behavior problems. Some of these seek help from rehabilitation counselors. Others end up in penal institutions or state mental hospitals. Still others remain in the community, living dependent, isolated lives in family homes only to eventually be institutionalized when their parents can no longer care for them.

The contributing factors are many. Obviously, one of the largest is the home situation. The past "oral only" philosophies have tended to increase frustration, anger, failure, and alienation of the deaf child and his family. Undereducation and consequent underemployment further aggravate the problem begun by poor or non-existent preschool parent counseling.

Still another compounding factor is the nature of the psychological problems encountered. In the general population, the chief role of the psychotherapist is to aid the patient in recovering from some form of regressed personality, thereby helping him return to his previous level of functioning. For many deaf patients, however, the deep rooted problems often involve a massive personality arrest at an immature level of development. Thus, the therapy must not only return the patient to the adjustment achieved prior to his mental illness; it must also raise him above previous levels. For example, an emotionally mentally-disturbed illiterate deaf person must not only recover from whatever psychological disorder he has; his cultural and educational levels must also be raised if adjustment to today's society is expected. This task is obviously far more difficult than the treatment of a regressed patient.

Recommendations: Prevention begins at home. Competent and qualified parent counseling is often essential to enable parents to cope effectively with the need for information and, indeed, with the feelings that occur when deafness is diagnosed. In addition, total communication is essential to facilitate communication and linguistic development as well as contribute to higher educational achievement and, subsequently, better employment.

Mental Retardation

The five major etiologies of deafness, including several genetic syndromes, are responsible for some mental retardation. To date, however, there is no facility in this country that provides the specialized services retarded deaf persons need. Yet, without specialized programs geared to their needs, these persons have little if any chance of leading independent or productive lives. Instead, they are doomed to personally depreciating and expensive state custodial care. This result occurs despite the fact that a number of studies have confirmed that many can be successfully rehabilitated (Mangan, 1963; Hall and Talkington, 1972, 1973; Huffman, 1967; and Hoffmeister and Farmer, 1972).

Recommendations: Mentally retarded deaf people have many needs including trained teachers specialized to work with retarded deaf students; emphasis on the use of visual and tactile approaches to education that to some extent circumvent the need for language; and provision of vocational education, counseling and placement service.

Furthermore, in terms of the emotionally disturbed and mentally retarded deaf, comprehensive programming must be developed covering the range from hospitalization to job placement and independent living. In all but the very large states, single facilities serving deaf mentally ill and mentally retarded may be more feasible than separate institutions. In this way, the limited number of professional persons who are qualified to diagnose and treat deaf persons could work at a single treatment facility. Until this development occurs, the present deplorable state of affairs may well continue.

Care must also be comprehensive, and must continue past the age of sixteen. One possibility is the model created in Norway, which involves a comprehensive facility for all mentally ill and mentally retarded deaf persons, except those so severely handicapped as to require full medical care. In the Norwegian model the more difficult patients receive their total care within the facility. Others not so ill may secure daytime employment in the community. For those still more capable the program is a temporary half way house. If states in the United States had similar comprehensive centers, the current fragmentation and void of services would be ended.

SUMMARY

A review of current situations confronting multiply handicapped deaf persons makes several issues apparent. Given the size of the population, the immensity of problems faced, and current projections for future increases in many of the multiply handicapped groups, the time to implement services is long overdue. It is obvious that at present such services are lacking. Furthermore, over the last five years the meager programs which had been developed are now extinct or are dying due to lack of support and permanently legislated financing.

Not only are the multiply handicapped greatly in need, but unless radical changes occur in educational trends — changes that include instituting total communication, establishing technical vocational education, and developing comprehensive rehabilitation — the deaf community in general will suffer. Two threatening trends which have already begun will more fully manifest in the next decade (Calvert, 1970). One is that due to increasing automation the average worker of the future probably will need to be retrained at least five times during his working life. Second, there is a "new competition" in terms of changing hiring practices which include rigid educational screening tests and blanket insurance rules that exclude deaf applicants. At present, from 60% to 85% of the employed deaf are in unskilled and semi-skilled work. Only 17% are in white collar positions as compared with 46.8% of the general population (Vernon and Snyder, 1972). If present trends continue, unemployment among the deaf may rise to 70% and many of the remaining 30% will be trapped in dead-end, unskilled, menial jobs (Sessions, 1966). The number of jobs open to the functionally illiterate, where at least 30% of deaf school alumni have been employed (Boatner, 1965; McClure, 1966) is rapidly shrinking. Obviously, the situation is grave.

In view of the conditions which confront multiply handicapped deaf people, the following urgent recommendations are submitted:

1. In terms of post-secondary vocational-technical education, the direction of the future must center on establishing more programs that teach skilled and semi-skilled trades. There must also be a strong placement emphasis.
2. Closer working relationships between the schools and the Division of Vocational Rehabilitation are essential.
3. Financially, a change is needed from "soft" money funding to legislated permanent "hard" money support. Caution is urged with regard to the defederalization trend which delegates all authority and programming to states. Since the number of deaf clients is relatively small their needs often get lost in state and city services. For this reason, returning responsibilities for deaf clients from federal to local levels poses hazards.
4. Politically, deaf people must be involved in programs serving the deaf.
5. Concentrated efforts must be directed to end the discrepancy between need and demand which leaves rehabilitation centers unfilled while relatively uneducated, unemployed, untrained deaf youth pour out of urban and rural schools in need of services but uninformed about their availability.
6. Improvement of the education and rehabilitation of urban deaf youth is essential to prevent the continued existence of cultural and educational deprivation among the inner city deaf, many of whom are black.

7. Early diagnosis and treatment of all deaf persons' disabilities, which are in addition to their hearing loss, must receive top priority. Ancillary to this, rehabilitation counselors and teachers must be trained to recognize symptoms of possible additional disabilities.
8. Total communication must be made available to all deaf persons in educational, preschool, and rehabilitative settings.
9. Competent parent counseling is of the highest priority. The family is an area of utmost importance because the early years, a formative period of development, are the most critical of a deaf child's life.

The time is now. The needs are drastic, and there is much that can and should be done for multiply handicapped deaf persons. Without such needed services many of these individuals will be unable to support themselves or contribute their share to society.

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MENTAL HEALTH SERVICES FOR DEAF ADULTS AND CHILDREN (MENDAC)

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Several studies have identified the deaf as an extremely high-risk target population in terms of their unique mental health needs. Since 1966, the Michael Reese Medical Center has had major commitments to the mental health needs of deaf children, their families, and deaf adults. From the period September, 1966 through August, 1969, the Psychosomatic and Psychiatric Institute (P & PI) and the Henner Hearing and Speech Center (Siegel Institute) conducted a joint research and development project on the psychiatric needs of deaf adults and children. This federally funded project had as one of its objectives the training of personnel who would possess the unique skills necessary to treat disturbed deaf adults within facilities maintained by the Department of Mental Health, State of Illinois. Unfortunately for the deaf community, these plans were never implemented. Through the efforts of an ad hoc committee* the then Director of the Department of Mental Health agreed to establish in his department a special program for disturbed deaf adults. In September, 1961, the then Governor of the State authorized funds for a special unit to treat disturbed deaf adults at the Illinois State Psychiatric Institute. In March, 1973, funds for that program were withdrawn by the action of the current Governor. Early in 1972, the David T. Siegel Institute initiated discussions with various officials of the Department of Mental Health to establish state-funded mental health services for deaf children and their parents. In January, 1973, the Siegel Institute submitted a grant-in-aid application through local channels of the Department of Mental Health. In June, 1973, the original ad hoc committee of Quigley, Sullivan, and Stein, now acting as representatives of the Illinois Council of the Hearing Impaired, met with the current Director of the Department of Mental Health to explain to him the need for mental health services to the deaf community of the state of Illinois. The Director subsequently suggested that the Siegel Institute grant-in-aid application for services to deaf children be resubmitted to include services for the deaf adult population. A revised application was submitted by the Siegel Institute in September, 1973. Notification dated November 5, 1973, awarded $49,086 for Children and Adolescent Out-patient Services and $24,120 for Out-patient Adult Services. The effective date for Adult Ser-

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vices was November 1, 1973. This award formed the basis for establishment of the MENDAC project at the Siegel Institute, Michael Reese Medical Center.

Staff Formulation

The MENDAC project officially started November, 1973, and initially we experienced considerable difficulty recruiting qualified personnel. We were able, however, to recruit two residents in psychiatry who joined the program and received training in the diagnosis and treatment of disturbed deaf children and adults. Both will remain on the staff of the MENDAC project after they complete their residency requirements October, 1, 1974. One will be assigned to the program for children, the other the mental health program for deaf adults. Total psychiatric coverage will approximate two and one-half days a week.

During the summer of 1974, we interviewed a number of candidates for the position of social worker or psychologist and social work aide. Negotiations were completed for a full-time clinical psychologist who will assume direct responsibility for adult patients and for a social work aide, who is deaf, is a graduate of Gallaudet and has worked with the mental health project for the deaf at St. Elizabeth's Hospital, Washington, D.C.

Services and Activities

During the first ten months of the grant-in-aid program, 67 patients were seen for either comprehensive medical and psychiatric work-ups, or individual or group therapy services. Of these, 15 were adults. In addition, a total of 18 families with deaf children were seen for psychotherapeutic counseling.

The majority of staff time was devoted to responding to crisis situations. Many of these referrals were prompted by the return to the state of Illinois by the Department of Children and Family Services of disturbed deaf children who originally had been sent to institutions outside the state. In addition, a number of referrals came from the Illinois School for the Deaf and from school districts that were experiencing extreme problems managing, in the classroom, deaf children with serious behavioral disturbances.

Staff members responded to these emergency or urgent requests in a number of ways. Whenever possible, staff members visited the school facility, wherever it happened to be located in the state, in order to observe the behavior of the child in the classroom and to consult directly with school personnel. Following such initial visits, the children were brought to the Institute for evaluation; and in a number of instances, they were housed in an apartment maintained by the Hospital to avoid the potentially traumatizing effect of hospitalization.

A representative list of courses of referral include:

1. The Division of Children and Family Services; specifically, disturbed deaf children being returned to the state of Illinois from institutions in Oregon and elsewhere.
2. The Illinois School for the Deaf, Jacksonville
3. The Rockford School System and the Singer Zone Center in Rockford
4. The West Suburban Association Special Education Program
5. The Rock Island-Moline School System
6. The Chicago Board of Education, the Division of Vocational Rehabilitation, and the Jewish Vocational Services in Chicago.

Whenever feasible, the referred adult or child and his family were provided direct therapy and counseling services here at the Institute. If the patient or his family lived outside of the Chicago area, staff personnel arranged for consultation with local mental health agencies and the school in order to develop appropriate therapeutic and educational services. In a number of situations, there was consultation by the MENDAC staff on a regular weekly or monthly basis.

In general, there were three broad problem groups:

1. Children under the age of 16 who with proper mental health management (individual psychotherapy, group counseling, special classroom provisions, and counseling of the parents or guardians) appeared able to remain in their respective special education classrooms. In the majority of situations we were able to initiate special services either by direct involvement or by providing ongoing consultation with local mental health and school authorities.
2. Deaf adults, primarily in the 18-25 year age range, who displayed anti-social behavior, poor impulse control, and primitive personality characteristics. This group constituted the most difficult caseload because successful treatment required a combination of educational, vocational, social, and psychotherapeutic treatment strategies.
3. Some children, but mostly older adults, who presented as chronic institutionalized patients. In most instances these patients had been discharged from institutions where they may have resided for many years into community or half-way houses where services were minimal or totally lacking.

A study of prevalence of emotional disturbance in school-age deaf children was initiated. As of September 1974, a total of 670 deaf students have been surveyed. This total includes 545 students enrolled at the Illinois School for the Deaf, 75 enrolled in day programs in the North Suburban Special Education District, and 50 enrolled in the day programs of the South Metropolitan Association Special Education District. During the summer, demographic data were collected and staff psychiatrists and psychologists began rating and evaluating teacher responses. In the fall, selected day programs in West Suburban Districts and six selected schools in the Chicago System will be surveyed. Data should provide valuable information on: (a) The prevalence and severity of emotional problems in both day and residential populations; (b) the need for self-contained special classrooms; (c) the need for residential treatment facilities; and (d) implications for in-service or revisions in training programs for teachers of the deaf and mental health workers.

Staff members have visited the Rockford and Rock Island-Moline school systems, the Illinois School for the Deaf, and various Chicago area schools to discuss establishment of special classroom programs for disturbed deaf children.

Program for the Coming Year (1974-75)

For FY 75, the department of Mental Health awarded the Siegel Institute a total of $93,000 for the MENDAC project. This is an increase over the previous year and enabled us to add an additional staff member. As indicated earlier, we interviewed and completed negotiations with a qualified deaf person whose primary functions are to establish meaningful contacts with the deaf community, to act as an intake worker for those deaf adults who may be reticent or unable to discuss their personal or family problems with a hearing individual, and to conduct, under supervision, counseling with such individuals. ◆

Under the current provisions of the Department of Mental Health grant-in-aid program, diagnosis, psychotherapy, and counseling are available to any hearing-impaired individual or family residing in the State of Illinois. This service is provided on an out-patient basis without regard for ability to pay. Patients who require diagnostic services and whose families live too distant for daily travel may stay in a furnished apartment maintained by the Hospital at no charge. Transportation also can be provided. Consultation with any hospital, agency, school, fraternal, parent, professional organization, or religious group is basic to the program.

Under provisions of the Illinois Emergency Service, eligible patients can receive up to 45 days of hospitalization for diagnostic services or crisis intervention. Hospitalization must be on a voluntary basis. Involuntary hospitalization or commitment of an adult or adolescent, requires certification by a physician who must attest to the fact that the patient is a threat to himself, or others, or so incompetent that he cannot care for himself. Such a commitment order is automatically reviewed by the Courts within twenty-four hours to determine whether or not the patient's civil rights have been violated. Involuntary commitment is usually made through a Department of Mental Health Zone Center or Hospital.

As of October 1, 1974, program personnel include: Three psychiatrists, whose total time commitment equals two and a half days a week; two clinical psychologists, a teacher of the deaf; a child development specialist; a social work aide; and a sign language teacher and interpreter.

In summary, the purpose of this state-supported program is to provide comprehensive community-based psychiatric diagnostic, psychotherapeutic, counseling and consultation services to hearing-impaired adults and children.

Section 3 - INNOVATIONS

REGIONAL RESOURCE CENTER FOR THE DEAF AND HEARING IMPAIRED

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During the past few years, the problems which deafness imposes upon an individual have begun to be recognized and steps are being taken to alleviate them. This recognition of these problems has come from increased legislation brought about by the activity and legislative efforts of the deaf themselves and of interested professionals. Increased concern and interest has resulted in more and better trained counselors, interpreters, social workers, and other personnel, in addition to increased and better equipped facilities. This was not true in the past, however, and even at this time, breakdowns still occur in the service delivery system for deaf individuals.

The breakdown or inadequacy of these services in the four states of Region X of the Department of Health, Education and Welfare became the concern of the professional personnel in the Rehabilitation Services Administration, and the educators, counselors, interpreters and program administrators within that geographical area which includes the states of Alaska, Idaho, Oregon and Washington. This concern was based upon the stated fact that the adult deaf have consistently been unable (a) to obtain satisfactory services from social, education and rehabilitation agencies which provide general services, and (b) have been unable to make adequate use of services specifically made available to them and to other disabled persons. Unsatisfactory services from the general social service agencies result largely from the lack of professional staff who can communicate with the deaf, or who have an understanding of the particular problems of the deaf adult. With the deaf adult, person-to-person communication is a barrier which constantly must be dealt with, whether in the delivery of social services, in the educative and training processes, or in the rehabilitation process. As studies of the deaf have continued in connection with these areas, more and more information has become available; however, no widespread and systematic method for exploiting this new and updated information has been developed.

This lack of an information dissemination system is also evident from the inadequate use that is made of services and facilities which are available and should be used by the deaf and the hearing impaired. Problems inherent in the disability of deafness hinder or block communications so that information about where human services are located, where jobs are, what training and education resources exist or even where interpreter services can be found are very real for the deaf. These problems received attention not long ago at a conference (Stewart and Schein, 1971); the following statement, which elaborates upon the need for information was developed.

"Information relating to problems of deafness and deaf people, and information concerning services to deaf people and to other persons concerned with the welfare of the deaf, is not readily available. Lines of communication need to be established to and from agencies at all levels which are involved with the problems of deafness; between such agencies and the deaf persons themselves; between deaf persons and members of the family constellation; and between all elements comprising the deaf community and the public at large. It is recommended that the Office of Education and the Social and Rehabilitation Service propose legislation to permanently fund an agency or organization for establishment and maintenance of a comprehensive clearinghouse for information on deafness. Services to be provided by such a facility would include publication and dissemination of a summarization of all previous workshops and conferences on deafness, a newsletter or similar publication disseminated to all areas of deafness, preparation and dissemination through a variety of media of pertinent information about deafness to the general public, and other public relations functions of a similar nature."

The above statement from the conference report indicates that a central clearinghouse could play a vital part in ameliorating the problems that occur because of the lack of adequate information. In Region X, the professionals and other persons concerned with the deaf were aware that various departments of the several state governments are working toward identical or very similar goals. It was also recognized that there was no mechanism for regularly exchanging information with each other, so that there was a lack of knowledge concerning all ongoing programs serving the deaf and hearing impaired.

The problem was also recognized by the participants in the National Conference for Coordinating Vocational Rehabilitation and Education Services for the Deaf (Curtis, 1971). At that time, the report to the conference from Region X participants indicated that some agencies and communities were developing services that could not be reported upon because of the lack of time to assemble the information. Two recommendations, developed at this conference, have as yet received only minimal attention:

1. "It is recommended that one person be appointed from each of the ten H.E.W. regions to work with each state in that region as a consultant or coordinator of services for the deaf in that region. These appointees would form a group of 10 (one from each region) which would comprise a national rehabilitation commission for the deaf. The group would then provide consultative services and administrative direction to programs for the deaf at the regional level. It would also provide a perspective of total services at the national level."
2. "It is recommended that schools, rehabilitation services, public health, medical services and such other agencies as may be appropriate coordinate their efforts in promoting early testing and referral, parent counselling, continuing comprehensive evaluation, and rehabilitation programs on a birth to death continuum."

Regional planning meetings were held in Seattle and Portland in late 1972 and early 1973. In each meeting the needs of the region and the individual needs of the respective states were discussed. Consideration was given to educational and social services that should be increased, upgraded, or added throughout the region. The result of these meetings was the development of state and regional priorities recommended for immediate attention. At that time, funds were provided to hire a coordinator of regional training programs and project planning who would work in conjunction with an ongoing program at the Oregon College of Education. The coordinator's responsibilities were to be to assist the region and the states in meeting the priorities that had been established, and to help with developing and assessing new priorities.

In addition to authorizing hiring a person to assist with regional and state programs, the regional planning session also identified priorities and urged the following action:

"The establishment of a regional resource and information center to be established at the Oregon College of Education. This resource center would be used to meet the informational demands of the various states and local public and private agencies. The concept should include the installation of a TTY so that communication can be established with the center at any time by any person, either hearing or deaf. It is anticipated that an information center such as this could keep on file the names and locations of individuals who serve the deaf in a wide variety of functions and also make occupational, education and training information available to any professional person who needs that information. Research briefs and legislative information would also be assembled and made available for use upon request."

Based upon the recommendations of the regional planning meetings, funds were made available in June, 1973, to establish the Regional Resource Center for the Deaf and Hearing Impaired (RRCD). The purpose of the project was to expand the availability of rehabilitation, education, and training services for and by the deaf and hearing impaired. This objective was to be met by providing information, consultation, and support to deaf and hearing-impaired persons, and by serving as an information exchange center for all professional persons in Region X who provide social, rehabilitation, and educational services to this target population.

Specific objectives of the RRCD are:

1. To make available throughout Region X, information concerning programs and facilities that serve the deaf and hearing impaired.
2. To disseminate regularly throughout Region X, information on new research concerning rehabilitation, training, and employment of the deaf and hearing impaired.
3. To establish and keep current, lists of professional personnel in Region X who provide services to the deaf and hearing impaired.
4. To establish a telephone typewriter service at the Center for the direct use of the deaf professionals and deaf clientele.
5. To provide information concerning specialized training programs for deaf persons who need special rehabilitation assistance.
6. To establish, continually update, and publish lists of, and requirements for, entering various post-secondary and educational programs adapted for the deaf.
7. To serve as a resource information center for students preparing to work with the deaf in a social service or educational setting.
8. To provide regular information to train and upgrade professional personnel working with the deaf and hearing impaired.
9. To provide legislative summaries and research briefs to professional personnel in Region X concerning legislation that affects the deaf and hearing impaired.
10. To serve as a consultant resource to agencies and personnel who are developing and upgrading programs for the deaf and hearing impaired.

Once the staff had been employed, three major tasks required immediate attention: (a) Establishment of a systematic method of collecting and cataloging information, (b) establishment of an on-line computer system which would make all information immediately available upon request, and (c) establishment of an Advisory Committee.

The general consensus of the staff, after reviewing previous literature and studies and consulting with social service and rehabilitation personnel in the various states, was that requests for information would fall into four broad categories — personnel, programs, facilities, and literature. The information which was to be included in each of these categories was described as follows:

1. **Personnel** — This category refers to individuals who perform a specific service to or for the deaf — including their parents, professionals, or other interested persons. Each individual's name, address, phone number and skill level are needed to make this category function effectively.
2. **Programs** — A program is defined as a series of services that assist an individual to move toward a specific goal; it may be part of a larger series of activities that are not all specifically directed toward the deaf or hearing impaired. A program may be in a school setting, a speech and hearing center or other environment. The name of the program, the name of the program director or contact person, the address, the phone number and the service provided are all needed.
3. **Facilities** — A facility is a special physical setting that offers a series of programs for the deaf and hearing impaired. The facility may be either residential or day care and the information kept available includes the name of the facility, the name of the facility director or contact person, the type of services provided, and the phone number.
4. **Literature** — This category encompasses a bibliography of literature relevant to the rehabilitation of the deaf or hearing impaired individual. Information contained in it includes the title of the article, the names of the author and publisher or prime source, and the date of publication. Literature published prior to 1950 would not be included unless it had specific relevance to later publications.

After the four major categories were identified, efforts were begun to obtain current information for each of the first three categories. The literature category became of secondary priority because of the size of the task involved and the lack of manpower. It was also felt that the most critical areas of concern were those involving direct service — i.e., the first three. This assumption was later proven to be somewhat in error. Information for these categories was sought from various state publications and by direct contact with individuals within the respective states. From these sources a list of personnel, programs and facilities was prepared; it served as the basis of the first Advisory Committee meeting.

The Advisory Committee consists of the presidents of each of the state deaf associations, or their representatives; one member from each of the vocational rehabilitation agencies in the region; and two members from private rehabilitation agencies that work with the deaf. Formation of the Advisory Committee was accomplished as follows: First, the presidents of the deaf associations in the several states were asked to serve on the committee. Any president that could not serve was asked to name a person to represent his association. This procedure worked well in all states except Alaska which has no deaf association. In that case, a deaf person from the Alaska Council for the Deaf agreed to serve on the committee. Committee members from the state vocational rehabilitation agencies were named by asking each state director to select someone from his staff to serve on the committee. In all cases, that person was either the state specialist for the deaf or a counselor who served the deaf. The final two members of the committee, who are from private agencies, were selected by the Center staff. These individuals were chosen on the basis of the contribution their respective agencies were making to the service delivery system for deaf individuals, and their own unique qualifications for providing service to the deaf.

During the first meeting of the Advisory Committee the following responsibilities were agreed upon:

1. Continuously update the listings in the respective states and establish a system within each state for notifying the RRCD of any changes or additions to be made to our listings.
2. Compile mailing lists of individuals and agencies that should be in the RRCD distribution.
3. Determine which mailing lists the RRCD should be on and make the necessary arrangements.
4. Promote the RRCD in the respective states.
5. Examine the RRCD's operation and make recommendations for change.
6. Assist in evaluating the Center's operations at the end of each project period.
7. Serve as liaison between the RRCD and the respective agencies and groups.

The final task to be completed was the establishment of an on-line computer program. This step was accomplished in cooperation with the computer center at the Oregon State University. The program which was developed allows a person to request information concerning the four categories of personnel, programs, facilities, and literature; for the first three, the program can respond to requests about the skill level of the individuals involved, and the functions which each of the programs of facilities is capable of performing. In addition, the program is written so that the number of requests for each category are automatically recorded and a standard response letter is printed for each request. This program has proven to be flexible enough that it can be updated and changed by the Center staff from the Center itself, without outside assistance.

In summary, the Regional Resource Center for the Deaf and Hearing Impaired at the Oregon College of Education was established following recommendations from both national and regional meetings. The major purpose has been, and will continue to be, the provision of information concerning deafness and related problems. An Advisory Committee provides consumer input and feedback which enables the program staff to meet needs that heretofore had not received attention. At the same time, the Center provides the necessary consultative and support services for training and direct service for professional personnel at both the regional and state levels. During the first three months of operation, a total of 47 requests were received and responded to; at the present time, the number of requests is exceeding that which was anticipated.

A Center such as this should be considered for every region. It can provide a base of operation for information on deafness and the cost when spread over a number of states is minimized. It can and should serve as a stabilizing factor in planning services to deaf individuals, and in enabling regions to prevent duplication and overlap of expensive services. Finally, by developing close working relationships with the state directors of the vocational rehabilitation agencies and the regional office, a Center of this type can help bring reality to, and implementation of, the Model for a State Plan for Vocational Rehabilitation of Deaf Clients.

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THE ADULT SERVICES OF THE RHODE ISLAND SCHOOL FOR THE DEAF

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The interest of a school for the deaf in the welfare of deaf adults has always been a difficult issue. Paternalism rather than service often seemed to overrun systems where the original intent was more than admirable. Peter Blackwell, principal of the Rhode Island School for the Deaf (RISD), appreciating both the advantages and problems that a school agency has in assisting the adult deaf, concluded that a center must be established to provide comprehensive services that would focus on the most pressing problems facing deaf of all ages. He envisioned a facility that would furnish leadership in all fields to enable every deaf individual to enjoy the same rights as a hearing person.

Identification of the most needed services had been partially accomplished. For example, the vocational picture of the New England deaf was bleak. Studies by Boatner, Stuckless, and Moores in 1964 had demonstrated that 80% of the deaf worked in some form of manual labor, that 60% were at grade level 5.3 or below, and that 30% were functionally illiterate. The School for the Deaf recognized its own responsibility in the creation of such disappointing statistics in Rhode Island by finally establishing a high school program. However, for the population who had reached only the eighth grade, or for the dropout, or the deaf dropout from hearing high schools, there were very few services to enable these adult deaf to restructure their lives.

Attempts by deaf people to break out of this state of vocational stagnation were frustrated by communication problems. When deaf adults turned to the School for the Deaf for understanding and assistance, they were advised to go to the Vocational Rehabilitation agency or the Catholic church. Unfortunately, the former had no counselors who could communicate with the deaf, while the latter could not supply the services to deal with their problems. As a result of this environment, a deep mistrust of all agencies, including the School for the Deaf, developed within the deaf community.

Given the major obstacles of job stagnation, communication difficulties, and a pessimism for bureaucracy, the Rhode Island School for the Deaf initiated the Adult Services program to provide vocational, educational and social services for the deaf community. Also, Adult Services was charged with the responsibility of constantly analyzing the Rhode Island vocational climate to insure that both students in the school and deaf adults could keep abreast of changes in the job market. Furthermore, it was hoped that an agency which straddled the vocational and educational sectors would be able to supply feedback to the high school pre-vocational program so that proper direction could be maintained.

Provision to fund Adult Services was made by the RISD through the Vocational Education Act of 1968 and its amendments. Because the state of Rhode Island is small, it was believed feasible to fund two positions within the new school facility to be available to all deaf state residents. This number was also justified by the fact that Rhode Island is organized very much like a city-state. It is only 48 miles long and 37 miles wide, and has an area of but 1,214 square miles. Rhode Island's deaf population of 6,000 is mostly centered in the capital city of Providence and its suburbs, and since the school and office are located within Providence, access to the services is relatively ideal.

Originally, the administration proposed that two staff members be hired to work a full fiscal year, although the school operated under a nine-month calendar. The decision to keep the office open eleven months was based on the idea that the community and not only the school population must be served. On a day to day basis, the office is open during school hours and at night, when the evening school is in session so that clients can schedule their appointments to suit their free time. However, since some clients find it impossible to visit during office hours, efforts are made to discover a mutually appropriate time.

Funding for the educational program came from both Adult Basic Education and Vocational Education. Adult Basic Education provides funds for teachers and administrators; for educational materials; and for classes in remedial areas, academics, and sign language for parents of deaf children and those interested in deafness. Vocational Education assumed the financial burden for courses intended to advance the consumer knowledge and vocational skills of the adult deaf. The Rhode Island School for the Deaf supplied the facility as well as much of the equipment, both software and hardware, and a great deal of leadership in developing of the direction and philosophy of the program.

Program Review

The Adult Services program has been in operation for a total of 19 months, offering an array of vocationally oriented services tailored to each client's needs. In the past seven months, a continuing education program of academic, vocational, and remedial courses has functioned in the evening in conjunction with the daily services. Philosophically and realistically, the two programs are geared to support one another so that clients who require special educational help can be funneled into the evening education program, and those who attend night classes can obtain assistance in looking for jobs that match their newly developed skills.

In general, the two major assets of the Adult Services activity have been its ability to respond quickly to the client, and the fact that its director is himself deaf which, for obvious reasons, facilitates student-teacher communication. With regard to appointments and schedules, the Adult Services attempts to minimize the importance of bureaucratic responsibilities in order to offset the years of frustration the deaf have suffered through delays, excessive paper work and neglect on the part of federal, state, and local agencies. Consequently, in the past 19 months the Adult Services has gained the reputation of being a "drop-in" center because of its organization of activties that closely follow the needs of each client. The second major asset has had the effect of drawing the deaf community into the domain of the Adult Services. A deaf director has the advantage of linking the deaf to the school. His presence assures the community that the deaf will not be ignored, and goes a long way toward dissipating the effects of years of mistrust.

Vocational Objectives

In addition to the flexibility of the program, the needs of the deaf community require identification of objectives together with proposed dates of completion so that both current students and the population that has left the school can be adequately served. Apart from the flexibility of the program, the needs of the deaf community insist that a list of objectives with dates of completion be met in order to deal with the population that has left the school as well as those who are now students. One of the major objectives is to locate deaf alumni every year for five years focusing on a particular class at a time, so that at the end of the five years, all alumni from the class of 1940 on will have been located. Generally, the other objectives are concerned with the juniors and seniors of every year who need vocational counseling, testing and interviews to discover their talents. The third major focus of the Adult Services is the Adult Evening Program, instituted to improve the vocational and academic skills of the adult deaf.

The initial objective is to develop a vocational profile of the typical adult deaf person from the graduating class of 1940 to the present. First, Adult Services attempts to locate graduates of the more recent classes; then the office works back until all employable alumni have been found. When these alumni are located, they are questioned with regard to their employment status. The inquiry attempts to discover whether or not the deaf client is somehow happy with, and is suited for, his/her position. If the client feels for some reason that he/she would like better pay, or a position requiring greater or additional training, these factors are noted and considered for further evaluation. The second major objective is to select from the profile for each year, the ten most misplaced deaf adults so that they may be placed in more suitable circumstances. The office makes every effort, however, to place each individual who is vocationally unsatisfied; it considers the selection of ten adults a minimal number of candidates for assistance.

In the two years of operation, a number of candidates have been placed in assorted in-state and out-of-state vocational education programs as well as in more suitable jobs. For example, one young woman, with an infant, had difficulty existing on public assistance. In conjunction with Adult Services, she was interviewed for a job as a hospital worker and with the assistance of an interpreter, she was able to obtain the position. A man who was functionally illiterate and who performed janitorial work was interviewed for work as a machine operator in a large manufacturing firm. His efforts resulted in a job that suited his skills and his financial needs, because he had the aid of an interpreter who could ease communication problems. In another case, a young deaf woman was found working well below her abilities in a sheltered workshop setting. Her situation was evaluated and she was placed by the office in a firm that could profitably use her dressmaking and sewing skills. Finally, a woman who was dissatisfied with her job as an assembly worker was allowed to take a General Aptitude Test Battery (GATB) with an interpreter, making sure she understood the instructions. The high score she achieved made her eligible to enter the Manpower Development Training program where she could learn bookkeeping skills. As a result of this training, she was placed as a bookkeeper trainee in a large firm.

Other out-of-state facilities are considered potentially available to those whose circumstances allow them to travel. One young man who had adjustment problems in his work was referred for advanced skills to the Anthony Graham Vocational Center at the American School for the Deaf. As a result, the man subsequently returned home to his former place of employment and was placed in a more skilled position. Another young man who worked part-time in a sheltered workshop, while a part-time student at the school, was accepted at Technical Vocational Institute (TVI) in St. Paul, Minnesota when it was discovered that he was very capable. A woman believed to have a severe emotional handicap was placed at TVI, and reports from the school indicate she is making progress in her new environment.

The list of objectives also calls for Adult Services to act as a consultant to the various agencies that agree to educate the clients, and the firms that provide jobs for the deaf individuals. Hence, it is the obligation of the Adult Services to be very mobile so that it can respond to an employer and a deaf employee to help them solve a mutual problem through either interpreting services or counseling and education. For example, one deaf employee who had been placed by the office was later moved to a different shift. The employee said he was losing money because of this move, and was unable to comprehend the reasoning behind the manager's explanation of the decrease in salary. The Adult Services was asked by the firm to explain the meaning of the shift differential so that the deaf employee could fully understand the company's action. An illiterate immigrant from Portugal who could not communicate with his employer complained that he could not find room and board so he could begin his new job. In this case, in addition to providing vocational assistance, the Adult Services located housing for the man.

Another major goal has been the investigation of the worth of various tests to discover if they can be used with the deaf. From a variety of tests, the Adult Services selected the GATB as one that can give some indication of the skills of the deaf. The present GATB, although not ideal because of its reliance on an understanding of English, enabled the Adult Services to rank each deaf client's skills so that he/she could make an appropriate vocational decision. Given this preference for the GATB, the Adult Services has made an effort to establish ties with the state agency that sponsors the exam. Cooperation between this testing service and the Adult Services has lead to the creation of an interpreter provision to insure that each deaf client will understand the numerous instructions and examples given within the exam. This is a particularly key development for deaf Rhode Islanders since, prior to this understanding, counselors in the state agency refused to believe that the deaf could master the GATB under any circumstances.

To insure vocational feedback to the school from industry and business, the Adult Services was required to create and maintain a report describing the vocational atmosphere of Rhode Island. Tasks performed to accomplish this objective ranged from the collecting of state and municipal data that indicate trends to interviewing many employers regarding their present needs. As a result of these efforts, the Adult Services met with instructors and administrators in order to discuss whether or not the school's pre-vocational program was still applicable. This objective is extremely important when one considers Rhode Island's economic history. In the past, Rhode Island was an important textile state but, for various reasons, most firms in this field have left the state for more economical settings. Since then the costume jewelry industry has dominated Rhode Island. Because of the seeming security and wealth of these industries in the past, Rhode Island has not sought to attract industries that require highly skilled labor so as to add diversity and strength to a now struggling economy. There are indications, however, that with the removal of another mammoth economic institution, U.S. Naval facilities, Rhode Island will have to begin to woo major corporations to the state. It is hoped that Adult Services will be able to assist the school to adjust to forthcoming shifts in the vocational and economic picture.

Another important responsibility of the Adult Services is the guidance of high school students at RISD as well as those hard of hearing and deaf students who attend "hearing" public schools. As long as RISD had no high school, promising students were urged to attend a community school to earn a high school diploma. In order for these students to receive proper supervision, the Adult Services was asked to maintain close ties with each deaf student's guidance counselor so that he/she would have some understanding of deafness to avoid further complicating an already difficult situation. Furthermore, the Adult Services was required to make all students under its jurisdiction aware of educational and vocational opportunities.

To prepare each student for his/her future, the Adult Services first interviews the student so that he/she can express vocational aspirations. Second, the student is exposed to the many opportunities available regionally and nationally through an organized introduction to post-secondary schools and colleges. This year, for example, students from RISD were sent to the American School for the Deaf for a career conference. After this, Adult Services aids in the completion of applications to schools such as Gallaudet, TVI, Delgado Junior College and National Technical Institute for the Deaf. Also at this time, Adult Services sponsors entrance examinations to enable each student to fulfill admission requirements. Upon notice from the various schools, the Vocational Rehabilitation counselor, who works closely with the school, interviews students and parents to discuss financial aid.

In order for the school to establish a working relationship with the various post-secondary programs, Adult Services is required to visit one school per year. Last year, Gallaudet College was visited; this experience allowed the office to bring back to Rhode Island a great deal of first hand knowledge about that campus. This year Adult Services intends to travel to the National Technical Institute for the Deaf. Perhaps the greatest benefit gained from such visits to educational programs is the extent to which RISD is enabled to improve its own facilities as a result of keeping in touch with leaders in the education of the deaf.

The final, but most important, activity has been the creation of an evening Adult Education program within RISD. Now into its second semester, the program offers vocational courses in Bookkeeping, Machine-shop Mathematics, Dressmaking, Photography, Business Machines, and Consumer Education. In addition, the curriculum includes English, High School Equivalency, Mathematics and Sign Language. These courses are taught by certified teachers of the deaf who must demonstrate a knowledge of sign language and fingerspelling. In selecting these courses, the Adult Services employed the Needs Assessment Instrument developed by San Jose State College in California and utilized by the Center for Continuing Education at Gallaudet College. In this way the Service can insure that the educational desires of the deaf are met rather than just to offer the standardized curriculum approved by state officials.

The real value of such a program is reflected in the progress of the students. One Portuguese immigrant was enrolled in Machine-shop Math; through this course, he was able to master the English measurement system and add to the knowledge he already has of the metric system. With this skill, the man was promoted to the position of foreman. Upon completion of the High School Equivalency course, two

SERVICES PROVIDED BY ADULT SERVICES — RISD

Services	Number of cases served **1972-3**	**1973-4**	**Total**
Consultation	98	75	173
Interpreting	16	21	37
Personal Assistance	21	25	46
Referrals	14	10	24
Vocational Evaluation	30	23	53
Vocational Counseling	27	22	49
Job Placement	7	6	13
Educational Counseling	23	23	46
Educational Placement	7	7	14

women are expected to be ready for the General Educational Development (GED) examination in late 1974. One woman who mastered bookkeeping and typing skills through the evening program will enroll in a state junior college in Data Processing. Many of the changes brought about by the program are not readily translatable into statistics. A number of people whose gains may seem minor when compared with others, nevertheless have significantly altered their lives through vocational and educational achievement. However, these people represent a core group that has never been challenged. In time, this core group probably will demonstrate the importance of its presence.

Another indication of the growth of the program, and a measure of its success, is shown by the percentage of deaf people who attend the evening courses. Forty one deaf adults have returned for courses offered in the second semester. This number represents nearly 8% of the total known deaf population in the state. Statistics show that among the 100 deaf and hearing students in the evening program during the first semester, absences averaged 5.4% per evening. At the end of this semester, 15 people had left for various reasons such as the fuel shortage and family obligations. Although statistics for the second semester are not ready for publication, there is some evidence to suggest that the averages will remain constant.

Critical Needs

The day and evening programs were initiated in the hope that services would naturally expand as the needs and desires of the deaf became recognized. Hence, when the Adult Services began operation, various gaps in the organization became apparent as demand increased. In general, the most pervasive problems have been lack of personnel and the need for cooperation among all sectors of the community. Solution of these problems perhaps can only be found through additional funding so that additional counselors can be hired. Since the state government believes that the Adult Services program must prove its worth before the office can be expanded, it seems that the organization will be limited for some time to come.

Perhaps the gaps in services can best be identified by describing an explanation of the duties one might assign to a new counselor. An additional counselor could develop an organized interpreter program so that each deaf client could contact the office as necessary and be assured of assistance that suits the occasion. To accomplish this, the counselor would have to both establish an educational program to instruct interpreters to deal at all professional levels, and organize the interpreters into a manageable system. This counselor should also be in a position to handle the many requests that are received for information and referrals. At this time, the Adult Services finds it very difficult to provide the data required by people interested in deafness. Another imperative would be creation of a series of publications designed to provide both the deaf and the hearing with some knowledge of the developments within the Adult Services and other agencies. Needless to say, constant communication between the school and the community could only further the interests of the deaf.

The need for additional public relations work has multiplied over the past two years. Although Adult Services personnel have lectured at a number of colleges and municipal and state organizations, the need to reach out to other areas is crucial. Through these visits, the Adult Services oftentimes becomes aware of deaf or hard of hearing people who become lost in the confusion of agency battles and misdirection. Many of these hearing impaired individuals have been institutionalized, or at least hidden from the knowledge that there are programs that can supply assistance. Also, with increased visibility, employers become more familiar with deaf individuals which aids in overcoming vocational barriers.

Although deaf adults were asked to list the courses they felt would be important for the evening curriculum, there is a serious present need for the adult deaf to contribute more to the direction of the program. It seems clear that to guarantee the participation of deaf adults, the office must be willing to court opinions and suggestions, and to create an open atmosphere. This kind of communication would be facilitated through a council of deaf adults. For reasons of time and limited energy, the Adult Services has not yet been able to establish such an addition to the program. If such a council had existed, however, it is very probable that many more deaf people would have been attracted to the program and, therefore, many more clients would have been served. In addition, one can presume that the establishment of a vocational board could have assisted the Adult Services in many other ways. Most importantly, these leaders of industry and business could have opened many vocational doors now closed to the deaf. Furthermore, a vocational board could have supplied the school with views on vocational trends. Hopefully, an increase in personnel will add sufficient strength to the organization so that the Adult Services will be in a position better to manage responsibilities such as these.

Projected Needs

The Adult Services anticipates expansion of its vocationally oriented programs into other areas of interest to the deaf community. An increase in funding and extension of the cooperation built in the early years of the program can lead to a center capable of providing comprehensive services to all, both night and day. This is in concert with the expectations of RISD since the school sees itself as an institution that should be involved in all matters relating to deafness.

In educational matters, RISD can broaden its academic and vocational appeal by establishing strong ties with the state's junior college. To accomplish this goal a great effort will be required to persuade those in charge of the system that there are long range benefits to be gained from education of the deaf. Furthermore, the junior college will have to be educated to the needs of deaf people, and be convinced that a total support system of notetaking, tutoring, counseling, and placement is necessary.

This kind of program would be an essential addition to the Adult Evening program, since a junior college could offer more specialized courses that RISD has neither the equipment nor the personnel to initiate and conduct.

Since RISD plans to expand and renovate its new facility in the Corliss Park area, the Adult Services can easily justify the assignment of some space to the interests of two specialized groups in the deaf community that warrant attention. Senior citizens, who long have been ignored by almost every institution, will be asked to set up a council to advise on the nature and quantity of activities they need. In addition, deaf youth, who have no center that can deal with their problems, will benefit greatly from an organization that can provide them with counseling as well as with room for socializing.

During the past two years, Adult Services has recognized the need for health facilities for the deaf who must constantly face a professional with whom they cannot communicate. Hopefully, the Adult Services will be able to enlist the enlightened services of a physician, a psychologist, and a social worker on a part-time basis. The Adult Services envisions this phase to include extensive counseling on drugs and alcohol, marriage and family, mental health, and an assortment of other problems. In addition, the Adult Services plans to work closely with the local community hospital in the establishment of an interpreter service. At this point, the Adult Services as well as the hospital administration are investigating the possibility of hiring an interpreter — secretary for daily services and the feasibility of developing a list of interpreters who can be contected if an evening emergency arrives. Hopefully, funding for this may be approved by the Department of Vocational Rehabilitation.

Perhaps the most important addition to the state organization would be a coordinator at a leadership level within the state government. Like other states, Rhode Island suffers from offering a variety of services that often conflict with one another. A coordinator would serve two important functions. First, he could organize all the agencies that serve the deaf so that each one would have a meaningful relation to the next one. Second, this official could develop and promote a list of standardized objectives to prevent the extraordinary amount of confusion that now occurs.

In its two years of growth to date, the Adult Services has attempted to become the final link in the "cradle to grave" philosophy of the school for the deaf. In order to accomplish this goal, however, the office has also tried to become a viable part of the deaf community. This unique posture of the Adult Services, at the very least, allows the Rhode Island deaf the opportunity to change their lives personally, academically and vocationally. Prior to this effort, benefit from RISD was an option that was closed to the adult deaf because of the school's history of benign neglect. Now, this option is open.

THE IMPLICATIONS OF RECENT COURT DECISIONS AND STATE MANDATORY LEGISLATION ON THE EDUCATION OF THE DEAF

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Until recent years the role of the professional educator has been primarily to educate children. Included in this responsibility was application of his professional judgment as to the type of education that was appropriate, and the place and under what conditions the education was to be carried on. The professional educational administrator also had to try to obtain the necessary funds to carry out his educational responsibility, and when sufficient funds were not available it was part of his duty to determine the priorities for expenditure of the educational funds that were available.

Now, this situation is changing. Interested groups, especially parent groups that are not satisfied with certain educational situations, particularly regarding who is to be served, where they are to be served, and how they are to be served, are resorting to the courts to effect changes. Frequently now it is the role of the professional educational administrator to implement policies mandated by the courts.

Major court actions throughout the country have been particularly frequent in that area of education known as "special education." Education of the deaf is one part of this phase. The key law cases, so far, have dealt primarily with the mentally retarded, but the judgments apply to all children and particularly to exceptional children. These judgments, therefore, although they are largely in areas other than that of the education of the deaf, may well pertain also to education of the deaf.

This paper deals with five general aspects or principles. They are: (1) due process, (2) right to an education, (3) placement, (4) confidentiality of records, and (5) local responsibility laws.

DUE PROCESS — CLASS ACTIONS

The basis of many of the legal actions regarding education is the due-process clause of the Constitution.

These cases are based on the fifth amendment which states: "No person shall . . . be deprived of life, liberty, or property without due process of law." They are also based on the fourteenth amendment which reads in part: "1. All persons born or naturalized in the United States, and subject to the jurisdiction thereof, are citizens of the United States and of the state wherein they reside. No state shall make or enforce any law which shall abridge the privilege or immunities of citizens of the United States, nor shall any state deprive any person of life, liberty, or property, without due process of law; nor deny to any person within its jurisdiction the equal protection of the laws."

The basic contention in these cases is that if a child is denied the opportunity to receive an education, he may be denied his individual liberty and property, and possibly his life, because it makes him unable to compete in our present day society. Therefore, it is unconstitutional to deny a child the right to an education without due process of law, which means he must have a legal hearing with legal representation.

Most important educational cases are class action suits. This means that the specific case is brought in the name of one person or a very small number of specific people, but it is designated as a class action because the individuals who are bringing the suit are representative of a much larger group or class who have the same problems. A finding in favor of the plaintiffs will then apply to all members of the class in addition to those specific individuals bringing the suit.

RIGHT TO EDUCATION

Judgments and policies related to the right to an education are based on the concepts that there is no such thing as an uneducable person and that every child has the right to a free public education. Under these concepts the public school has the responsibility to educate every child, and has no right to reject any child under any circumstances. Thomas K. Gilhool, a lawyer not an educator, states, "The factual argument for right to education was equally straightforward. It rests on the now clear proposition that without exception, every child, which includes every exceptional child and every retarded child, is capable of benefiting from an education. There is no such thing as an uneducable and untrainable child."

The first major court case to support this position was that of the Pennsylvania Association for Retarded Children, Nancy Beth Bowman, et.al. versus the Commonwealth of Pennsylvania. The Association sued the State of Pennsylvania for its failure to provide all retarded children with access to a free public education. The suit was brought in January 1971, and the suit was heard by a three-judge panel in the Eastern District Court of Pennsylvania. The case was actually settled on a "gentlemen's agreement" before a judgment was made, and as a result no precedent was set. The decrees, formalized by the court on May 3, 1972, stated that school districts:

1. May not postpone nor in any way deny to any mentally retarded child access to a program of public education and training.
2. May not deny home instruction to any mentally retarded child because no physical disability accompanies the retardation or because the retardation is not a short-term disability.
3. Shall provide for immediate re-evaluation, for re-evaluation every year if requested by the parents, and for re-evaluation of all children at least every two years.
4. Must allow each child access to a free public program of education and training appropriate to his learning capacities.
5. Shall provide, no later than September 1, 1972, for the education and training of children less than six years of age.
6. Shall secure such proper education and training outside the public schools of the district where it is not possible to form a special class in a district or to provide an education for any child within the schools of the district.

The implications of the above decree are:

1. Testing or assessment services must be more extensive and more carefully administered and personnel whose secondary responsibility is testing must be discontinued.

2. Regular re-evaluations every two years must be instituted — more frequently if requested.
3. Advisory committees must be employed so that placements and judgments will be based on data reviewed by professional persons. Such actions will be acceptable to the courts. California requires unanimous vote, minutes, statement of policies, etc.
4. Parents must be involved in placement and should be kept informed on all actions.
5. Failure to provide service for any handicapped child can no longer be excused because he lives in a sparsely settled area or because of low incidence figures.
6. Claims of adequate services in the regular school programs are no longer acceptable unless these services meet the parents' expectations.
7. Keeping students on waiting lists to get into programs is not acceptable.

Another landmark case is Mills versus the Board of Education of the District of Columbia — ruled on by the Court in December 1971. In it the parents and guardians of seven District of Columbia children brought a class action suit against the Board of Education of the District, the Department of Human Resources, and the Mayor for failure to provide all the children with publicly supported education. The children involved ranged in age from seven to 16, and were alleged by the public schools to present the following types of problems that led to denial of their opportunity for an education: Slightly brain damaged, hyperactive, epileptic and mentally retarded, and mentally retarded with an orthopedic handicap. Three children resided in public, residential institutions without educational programs. The others lived with their families; when denied entrance to programs they were placed on waiting lists for tuition grants for private educational programs. In none of these cases, however, was a tuition grant ever provided.

Also at issue in this case was the manner in which the children were denied entrance to, or were excluded from, public educational programs. Specifically, the complaint said that, "Plaintiffs were so excluded without a formal determination of the basis for the exclusion and without provision for a periodic review of their status. Plaintiff children have merely been labeled as behavior problems, emotionally disturbed, hyperactive." Further, it is pointed out that, "The procedures by which plaintiffs are excluded or suspended from public school are arbitrary and do not conform to the due process requirements of the fifth amendment. Plaintiffs are suspended and excluded without (a) notification as to a hearing, the nature of offense or status, any alternative or interim publicly supported education; (b) opportunity for representation, a hearing by an impartial arbiter, presentation of witnesses; and (c) opportunity for periodic review for the necessity for continued exclusion or suspension."

Essentially the court ruled, "that no child eligible for a publicly supported education in the District of Columbia public schools shall be excluded from a regular public school assignment by a Rule, Policy, or Practice of the Board of Education of the District of Columbia or its agents unless such child is provided (a) alternative educational services suitable to the child's needs which may include special education or tuition grants, and (b) constitutionally adequate prior hearing and periodic review of the child's status, progress, and the adequacy of any educational alternative." The court went on to rule that every school age child residing in the District of Columbia shall be provided within 30 days of the order, ". . . a free and suitable publicly-supported education regardless of the child's mental, physical or emotional disability or impairment . . ." The court also stated that children may not be suspended from school for disciplinary reasons for more than two days without a hearing and that provision must be made for his education during his suspension.

In response to the plea of the defendants that insufficient funds were provided and that additional funds would have to come by act of Congress, the court ruled, ". . . if sufficient funds are not available to finance all of the services that are needed and desirable in the system then the available funds must be expended equitably in such a manner that no child is entirely excluded from a publicly-supported education consistent with his needs and ability to benefit therefrom. The inadequacies of the District of Columbia school system, whether occasioned by insufficient funding or administrative inefficiency, certainly cannot be permitted to bear more heavily on the 'exceptional' or handicapped child than on the normal child."

In testimony submitted to the court, witnesses stated that education cannot be defined solely as the provision of academic experiences to children, rather, education must be seen as a continuous process by which individuals learn to cope with, and function within, their environment. Thus, for children to learn to clothe and feed themselves is a legitimate objective achievable through an educational program.

The significance of the Pennsylvania and the District of Columbia cases taken together, to the extent they can be considered a precedent, is that the public school system is responsible for providing an education for every child regardless of his handicap or the severity of his handicap, that every child is capable of an education, that children may not be excluded from school without a due process hearing which includes legal representation of the child and his parents, that any suspension from school must be for a very short period of time with an educational program being provided during suspension, and that lack of funds to enable a system to carry on an educational program is not an acceptable excuse for not providing equitable services for every child.

It seems germane to identify more precisely the mentally retarded and also the multihandicapped. There is some agreement that approximately three per cent of our population falls into the category of the mentally retarded. The American Association on Mental Deficiency defines mental retardation as: "Subaverage intellectual functioning which originates during the developmental period and is associated with impairment in adaptive behavior."

The Association states that 89 per cent of retarded persons in the United States are only "mildly" so. In terms of I.Q., it describes this group as those who score between 55 and 69. The Association defines six per cent as "moderately" retarded with an I.Q. range of from 40 to 54, and say that only five per cent are "severely" retarded with I.Q.'s from about 25 to 39 or "profoundly" retarded with I.Q.'s below 25. The last-named group require constant care. In the court decisions there is apparently no distinction between the school's responsibility to provide an education for the profoundly or severely retarded child, and for the mildly retarded child.

Children classified as multihandicapped are those who have two or more handicapping conditions, any one of which is sufficiently severe to impair learning. A very important fact here is that a person suffering from two types of handicap has not only the problems arising from each handicap separately, but also those brought about by the combination of the two handicaps. That is, the total handicapping condition is not additive, but cumulative — the whole being greater than the sum of its parts.

Another legal action which may prove a landmark is that of L. . . C. . . versus The California Department of Education; Leslie Brinegar, Division Chief; and Richard G.

Brill, Superintendent of the California School for the Deaf. The trial in this case was concluded on September 15, 1972, with the final ruling of the Superior Court of Riverside County, where the trial was held, being handed down in January 1973. The ruling was in favor of the Department of Education as the defendant and is currently on appeal to the California Appellate Court. Findings of fact in the case verified that the Multi-Handicapped Unit at the California School for the Deaf, Riverside, was established to educate deaf children with one or more additional handicaps. It was also verified that admission to the school was on a trial basis and that the parents of L. . .C. . . signed a statement agreeing to withdraw the child if it was determined that she should not be in the school. Both sides agree that L. . .is autistic and deaf, and the plaintiffs, as well as the defendants, concede that L. . . may suffer from retardation in addition to her autism. It was verified at the trial that L. . .was frequently incontinent in both bowel and kidney functions. L. . .cannot dress herself without assistance and frequently abuses herself by striking her own body, particularly her head. L. . . was admitted to the school in May 1970 and by the end of the school term in June 1972, the only two word signs she had been able to learn were those for "cookie" and "mine", and even these she did not use in the appropriate situations.

It was further brought out at the trial that L. . . was unable to sleep at night, could not be left unattended, had to be led from place to place, and required constant surveillance to protect her well-being. L. . .did not give evidence of any learning at the Unit in the sense of acquiring knowledge. The fact that she required one-to-one attention both by teachers and by counselors caused less education to be provided to other children in the Unit, and produced no verifiable educational gain for L. . . The role played by teachers in relation to L. . . was one of being caretakers and custodians rather than that of teacher to pupil. It was brought out that L. . .'s parents had always had difficulties with her and that they had applied for and received help from six other agencies and schools before the California School for the Deaf indicated a willingness to take her on a trial basis.

At the trial Hilde Schlesinger, M.D., a psychiatrist who specializes in treating the deaf, and who has also had experience in the area of autism, stated that such a child more properly belongs in a facility such as Sonoma State Hospital which has a combined psychiatric-educational setting for deaf youngsters, utilizes total communication, and has such long-range goals as self-care in an institutional setting up to graduation into a normal deaf program. The court found that L. . . does not now have the mental capacity to be a pupil in the Unit because of her severe autism and her possible retardation and that the defendants acted reasonably when they dismissed L. . . from the Unit.

In addition to ruling on the facts of the case, the judge ruled on the procedures that were followed. The manner in which staff conferences are carried on at the school with representatives of various departments submitting professional reports followed by discussion, was reviewed and described. The court stated that the parents or guardians are not present at such meetings for the obvious reason that their presence could inhibit free and open discussion of the child who is the subject of the report. However, persons may offer testimony or reports on behalf of the child, and a legal representative of the child may be present. It was following such a staff discussion that the child was dismissed from the school; but the parents appealed this decision to the Division Chief who ruled that the child should have a further trial period of enrollment at the school.

This additional trial period extended for three and a half months after which another staff conference was scheduled; at this time the parents were represented by a national authority on autism, who is a university professor, and also by their attorney. The school had also utilized a consultant who is an authority in his field before reaching the decision to drop the child from school. Following this second conference, the final decision to drop L. . . from school was made by the Division Chief, who was the person at the appeals level. The parents' attorney, who was present at this meeting, wrote to the Division Chief setting forth the arguments supporting L. . .'s retention. This letter was received by the Division Chief before the decision was made and was considered by him. The Division Chief, after he had weighed all the evidence, determined that the long-term trial period of more than a year and a half had shown L. . . could not function as a pupil in the Unit; that she needed one-adult-to-one-child care; and that, therefore, she should be dismissed from the Unit.

Both the Division Chief and the Superintendent wrote the parents, and a copy of the report of the second staff conference was sent to them. The plaintiffs in the case did not appeal the decision of the Division Chief to the State Superintendent of Public Instruction, who is the person authorized to make the final administrative decisions on matters concerning the Department. Instead, they ignored the instructions of the Division Chief and the Superintendent of the school and placed L. . . on a bus chartered by the school and returned her to the school. The parents immediately commenced a legal action resulting in L. . . remaining in the Unit an additional five months. Thus she was in the Unit for more than two academic years before the trial was held.

In this section of the judgment the court ruled, based upon its independent weighing of the evidence introduced at the trial, that L. . . should not be returned to the Unit because she cannot achieve education there; and that the attention she received from the Unit's teachers and dormitory counselors was beneficial to her only in the sense of custodial care, which care should be given to her by nurses, psychologists, physicians, custodial attendants, and other persons in the medical field trained to deal with, and care for, children with severe mental problems regardless of the cause of such problems. The court further held that the plaintiffs received full due process of law at all stages of the handling of L. . .'s dismissal by the defendants and that the defendants acted in a reasonable manner in all of their dealings with the plaintiffs.

The judge, in his decision, gave 32 additional statements dealing with the conclusions. With reference to the interpretation of the Education Code under which the California School for the Deaf operates, the judge held that the defendants are bound to provide a free education at the school to every deaf minor between the ages of three and 21 years who has suitable capacity. The Education Code also states that a public school in California is obligated to educate children of suitable capacity. The judgment continued, "Suitable capacity means the ability of the child over several years of schooling to acquire at least basic vocabulary, reading, writing and mathematical skills commensurate with lower grammar school levels and the ability of the child to participate individually as a pupil contributing to his classroom group."

The judgment stated also that the education of handicapped children is a fundamental interest of the state, and that the defendants have met and are meeting their responsibility to provide education for children handicapped by deafness. It further said, "The handicaps of deaf children over and above their deafness which makes them eligible for admission to the Unit must not be of such severity that they are not of suitable capacity to receive an education."

Another section states, "Training a child of diminished mental capacity in such basic needs as eating, 'toileting', and other acts of self-preservation is not education within the purview of the Education Code," and "a person teaching a child of school age of diminished mental capacity to eat, use toilet facilities, dress and avoid dangers in her immediate surroundings and, in addition caring for such child on a custodial or care basis, is not educating such child within the meaning of the Education Code." Furthermore, the judgment indicated that the obligation of the state to teach or impart to autistic, mentally retarded, or mentally ill children these basic self-help skills is met by providing a competent staff with medical training in state hospitals.

And again the court held, "A child whose mental condition was such that she could not, over several years, acquire even basic vocabulary skills, and could not acquire even rudimentary writing or mathematical skills, and in addition had behavioral problems of physical self-abuse, defecation, urination, and withdrawal, needing constant attendant care, is not of suitable capacity to secure education in the California School for the Deaf." The total findings in the case on the merits, on the procedures, and on the conclusions of law total 100.

The significance of this case is that the findings are contrary to those of the Pennsylvania and District of Columbia cases in defining educability, and that the responsibility of the school is to educate a child and not to provide custodial care even when this is the maximum from which a child can benefit. According to the findings in the California case, there is a fundamental difference between training and education. The judgment determined that the due process features had been appropriately carried out.

It is significant that both the California Court of Appeals and the Supreme Court denied writs that would have required L. . . to be returned to the School for the Deaf pending the outcome of the appellate processes.

PLACEMENT OF CHILDREN

A number of cases have come to the courts because of the apparent disproportionate number of certain minority-group children in classes for the mentally retarded. Examples of these cases are Diana v. the California State Board of Education; Larry P., M.J., et al. v. Riles, et al.; Lebanks, et al. v. Spears, et al. Evidence in these cases showed that the intelligence tests used as the basis for the placement in the classes for the mentally retarded were not fair or appropriate to certain minority groups because of the cultural bias of the test questions and because the true handicap was frequently one of language. This was particularly true in the case of Mexican-Americans where Spanish was the child's primary language, and thus the determination on the basis of an English-language test that the child was mentally retarded was entirely inappropriate.

Court judgements in some of these key cases have mandated that more qualified examiners be utilized, that "culture free" tests be used, and that the language handicap be taken into consideration. One court has ruled that minority group children already in mentally retarded classes must be retested and that a continuing retesting program be carried out with all children that remain in classes for the mentally retarded.

While there have been no known cases involving deaf students in this general category, a similar situation exists with regard to the language handicap of deaf students and the lack of general knowledge of the culture which could have a great effect if an inappropriate intelligence test is used with the child. All educators of the deaf have seen reports on deaf children, which indicate a low I.Q. as a result of a psychologist using a full Stanford-Binet or some other intelligence test that involved language.

Somewhat allied to this situation is the matter of audiometric or audiological evaluation of a child with impaired hearing. Improper assessment of test results frequently may place a child in a hard-of-hearing rather than a deaf category because of the amount of residual hearing. All too frequently educational recommendations are made by individuals who are ostensibly capable of administering hearing tests but who have no valid judgement as far as program needs are concerned — a practice that would seem to be illegal as well as immoral.

An important aspect of child placement is the legal right of the parent to have a voice in the decision on where the child goes to school. One of the findings of the Pennsylvania case stated that the parent and the child must have an opportunity to be heard any time a change in the child's educational placement is to be made. The final judgment as to placement should have as the sole criteria: "Is this the appropriate program of education and training for this child, and if it is not, what is?"

The attitude of the court, as expressed in the Pennsylvania case, is that first of all exceptional children should be served in regular classes if at all possible. Next come special classes in the regular schools. Third are special schools associated with the regular public schools so that the child still resides at home. Finally, the court concedes that residential schools and residential institutitons may be required in some cases. It does not differentiate between residential schools and institutions. Educators of the deaf who are concerned about minimum essential criteria — such as sufficient children to ensure homogeneous grouping, qualified teachers, good professional supervision, appropriate equipment, qualified supplementary personnel such as audiologists and psychologists, and appropriate curricula — recognize that the low incidence of deafness in many instances causes the residential school to offer a quality program that no special class or integrated program can ever offer.

CONFIDENTIALITY OF RECORDS

In today's computer age the general society has great concern about the multitude of records kept on individuals. These include data that may be accumulated by the F.B.I., or by credit associations, banks and so forth. Many people have felt themselves up against a stone wall because information kept in their files by one or more of these organizations contained untruths; and found it almost impossible even to see the file, and even more difficult to correct the errors. As a result, some legislation has been passed to try to rectify the situation where a person's credit rating may be impaired because of information in a credit bureau file. For one thing, the law now says that a citizen has the right to see the information in his credit bureau file. Recently, concern has been growing regarding the information in pupils' files in schools, and who has access to it.

It has generally been the policy to consider intelligence test scores as confidential information recorded in a child's file, and not to make these scores known to the parents. The rationale for this position has been that generally parents do not have the professional knowledge and background to interpret intelligence test scores properly, and that releasing them to parents would be likely to do more harm than good.

Many reports of occurrences, particularly in a residential school, become part of the file of an individual child. Frequently other children are mentioned in such incident reports. Schools vary in their practices but frequently such reports are retained in the permanent files. Very often there is the curious situation that the parent is required to sign a release form to allow the contents of a child's confidential file to be made known to another school or agency, although the information is not revealed to the parent.

Under the sponsorship of the National Accreditation Council for Agencies Serving the Blind and Visually Handicapped, a workshop was held in June 1972 and this whole matter was thoroughly considered, particularly as it related to residential schools for the blind. It was brought out in that workshop that in instances where confidential records were no longer maintained by the school system, often actually the records went underground. In other words, unofficial records were kept somewhere in a locked file. Also, it was revealed that, because of lack of formal records, subjective observations of children were passed by word of mouth from teacher to teacher — a practice that frequently may have been more prejudicial to a child than maintenance of objective records. A third outcome of the workshop was emphasis on the fact that every teacher began the new year with new children for whom there were no basic data — no intelligence test information, no achievement test information, no other information on what the child had done. Thus, a goodly part of the school year was spent by the teacher acquiring knowledge that a good record system could have given her on the first day of school.

This 1972 workshop recommended maintenance of three categories of data. Category "A" would contain official administrative records that constitute the minimum personal data necessary for operation of the educational system. These include for each child name, address of parents, birthdate, academic work completed, level of achievement, and attendance data. These records should be maintained in perpetuity.

Category "B" data would include verified information clearly of importance, but not absolutely necessary for the school to have over a long period of time, either to help a child or to protect others. This information would include such things as scores on standardized intelligence and aptitude tests, interest inventory results, health data, family background information, systematically gathered counselor and teacher observations and ratings, and verified reports of serious or re-occurring behavior patterns. Specific incidents would have to be unambiguously described and verified before they became part of any continuing record.

The school should give serious consideration to periodic elimination of unnecessary category "B" data. Although such records might be kept until the pupil finishes school, at that time the records should either be destroyed, or, if retained for research purposes, be made anonymous.

Category "C" data would include potentially useful information which either had not yet been verified or that clearly would not be needed beyond the immediate present. These items would include such things as personality test results; unevaluated reports of teachers, counselors and others, and various disciplinary reports. Such data would be reviewed at least once a year and either destroyed when its usefulness is ended, or transferred to category "B". For such transfer, two conditions must be met. (1) Clear demonstrations of the continuing usefulness of the information, and (2) verification of its validity. In such a case, the parents would have to be notified and the nature of the information explained to them.

Certain professionals in the school, such as the school psychologist or social worker, might have confidential personal files. These would include notes, transcripts of interviews, clinical diagnoses, and other memory aids kept for their own use in counseling pupils. Any and all such data would be considered to be the personal property of the professional.

Narrative reports by professional personnel are frequently of great value in determining the appropriate program for a pupil; they should be part of the record and made available to other members of the professional staff when needed. It is suggested that if the parents of a student request the results of his diagnostic tests they have the right to be informed. In such a case a competent staff member should interpret the report to the parent in lay terms. The same procedure should apply when the results of scholastic achievement tests are reported to parents. Thus confidential reports are still necessary.

It is essential that the distinction between confidential reports and privileged reports be understood. The term "confidential" refers to the expectation of nondisclosure of communications, but the term "privileged" denotes the legality of nondisclosure when it is called for in judicial or quasi-judicial proceeedings, the privilege of non-disclosure having been established by legislative enactment or judicial ruling. As stated in the workshop report in a section entitled *Confidentiality and the Law*, "cases that once were argued simply on the reasonableness of a school regulation, an issue upon which courts might be expected to defer to educators, are now frequently premised upon asserted violations of constitutional rights. ". . . if as has been charged, courts were once simply rubber stamps for school authorities, that moment is evidently nearing an end. With it may also end the courts' disinclination to interfere in the governance of the public schools, including issues of student records."

When today's schools maintain student files they must view these files in terms of four considerations or relationships: (1) parent and pupil files, (2) staff and pupil files, (3) transmission of files to other schools and agencies, and (4) for research value.

LOCAL RESPONSIBILITY LAWS

Legislation in this field, and court rulings that have the force of legislation are most frequently initiated to protect the rights of all individuals, including those who are severely handicapped; they have the laudable intention of providing all children with educational opportunities as close to home as possible. Problems arise, however, when laws or mandates that may be quite appropriate in a general situation, or even in the majority of particular situations, do not bring about the desired objective in a specific area because of circumstances peculiar to that area.

People knowledgeable in the education of the deaf know the singular distinctions of this field where the educator of the deaf has the awesome responsibility to teach language and the various means of expressive and receptive communication to prelingually deaf children. Schools for the deaf have the responsibility to provide knowledge in content fields to deaf pupils while simultaneously working at the never-ending task of providing them with the fundamental tools for thinking and communicating. Educators of the deaf know the concomitant psychological, social, and vocational problems that they are seeking to help their pupils overcome. No area of special education, other than that of the deaf-blind, is so complex and requires such great technical skill on the part of the teacher and the whole educational team. Because this is the case, certain general rules and rulings that improve educational opportunities in other fields of special education may have just the opposite effect on education of the deaf.

The major case in point is the local-reponsibility legislation that has been passed in so many states in recent years. These laws generally make each local school district responsible for providing for the education of every child of school age who resides within that district. State laws vary as to the manner in which this responsibility may be carried out. Some states allow adjacent school districts to contract with one particular district to serve their deaf children so that there will be a sufficient number of children for a class. In some states where a local district does not have enough children for a class or a program, provision is made to use the services of the state residential school, with the children being sent to this school. In such cases, however, continuing pressure usually is exerted for the local districts to establish local programs. Frequently the unspoken, if not voiced, attitude of the local district administrators, is that only multihandicapped deaf children should be sent to the state residential school.

Educators of the deaf know that most deaf children can be appropriately served only when they are in a program that is large enough to allow for homogeneous class grouping, that employs qualified teachers, that provides for supervision by qualified personnel who are themselves experienced teachers of deaf children, and that provides support personnel such as psychologists and audiologists who are experienced in working with deaf children. In addition, special equipment and materials are necessary. A major part of the problem lies in the fact that the typical educator of normal children, and even the typical educator in other areas of special education, has almost no concept of the special problems of the deaf child and thus tends to support fully legislation mandating local responsibility.

The Conference of Executives has recently published a position paper entitled *Recommended Organizational Policies in the Education of the Deaf* which carefully develops the place of the education of the deaf in American public education. It describes the unique characteristics of the problems of educating deaf children, presents detailed data on the incidence of deafness so that the reader can be aware of the number of deaf children likely to be found in a given area, outlines the basic criteria for educational programs, and provides guidelines for integrating deaf children with hearing children. When this policy statement is made available to other educators, parents, and legislators, it may help them to understand the uniqueness of this field and may enlist their support for proper legislation to mandate educational programs for deaf children that meet certain basic criteria.

There is much to recommend in the concept of centralized control and coordination of educational programs for the deaf within a state as opposed to the traditional philosophy of local control. A statewide program can provide for early identification and assessment, appropriate educational placement, and continuing evaluation of progress. It can also ensure that educational programs within the state meet the minimum standards necessary for providing quality education for all of its deaf children.

Three states — Arizona, North Carolina and Texas — have developed centralized authority for the education of the deaf, although they follow different patterns. The principal day school in Arizona, located in Phoenix, is owned and operated by the state as a satellite of the Arizona School for the Deaf, with the superintendent of that school being responsible for both programs. North Carolina has three residential schools for the deaf with the superintendent of the school in Morganton functioning as the Director of Education of the Deaf for the state, thus ensuring coordination of all programs. Texas has recently established five regional districts with a superintendent at the head of each district; all are under the administration of one director. The superintendent of the state residential school is the head of one district. Education of the deaf in all districts is state financed. A fourth state, Illinois, has established regional programs that are controlled by local education agencies. The examples provided by these four states show that it is possible to mandate statewide or regional control over educational programs for deaf children. If other states would follow their lead, the end result would be coordinated and efficient utilization of available resources to provide the best possible education for deaf children.

SUMMARY AND CONCLUSIONS

This paper has outlined the results of certain recent court decisions in the area of special education. Consideration of the rights of pupils under the due process clause of the constitution has resulted in rulings to the effect that where decisions are made that vitally affect the lives of pupils, these pupils must be legally represented at judicial or quasi-judicial hearings.

There have been rulings that state the public school system is responsible to provide an education for every child in the United States. Other rulings distinguish between educability and trainability, and thus make a distinction between the public school system that is responsible for providing an education and other social agencies that are responsible to provide custodial care when the child cannot benefit from an education.

A number of court cases have been relevant to the placement of children in special education classes or programs, particularly in regard to the evaluative instruments, the criteria, and the competence of the evaluative personnel used to effect such placement. Courts have ruled that parents and children have the right to be heard any time a change in the child's educational placement is to be made. Certain courts have expressed the attitude that all exceptional children should reside at home and be served by the local public school district, with integration with normal children stressed as much as possible.

It was pointed out that the whole matter of confidentiality of pupil records is a legal matter about which educators were not particularly concerned in earlier years.

Most of the current rulings are not yet truly all-encompassing because they are rulings by district or regional courts and not by the United States Supreme Court. However, the questions should be considered on the basis that they may become all-encompassing.

Also considered has been the distinction between a professional staff conference and a legal hearing. How is the best professional information to be obtained and the best professional judgment to be reached for each individual child if a professional staff discussion is simultaneously a legal hearing, with an attorney present as an advocate? How can all the pertinent information be introduced and discussed under such conditions?

If a school cannot admit a child on a trial basis, how can educability in terms of that particular school having a program to meet the child's needs be determined?

Where does the responsibility of the educational administrator lie in terms of maximum opportunity for learning for the large majority of children when a few students who are making it impossible for that majority to learn cannot be suspended or dismissed?

These and other questions make it clear that the role of the educator today is not just to educate children, but also to maintain a viable school program in conformity with rules and regulations interpreted by or mandated by the courts.

Finally local responsibility laws were discussed in terms of their effect on the general program of educating deaf children in view of the incidence of the handicap and the basic criteria for acceptable programs.

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TELEPHONIC COMMUNICATION ASSISTANCE DEVICES FOR DEAF PEOPLE

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Many vocational rehabilitation personnel have indicated a need for special information to help them select and provide special telecommunications devices for their deaf clients, as provided for under Section 103(11) of the Rehabilitation Act of 1973 (Public Law 93-112). To meet this need, the Office of Deafness and Communicative Disorders, RSA/SRS/DHEW supported a study to develop descriptions of a number of the devices now being produced and used, to varying degrees, in the United States to ameliorate the telephone communications problems of deaf persons in both work and social living.

This paper begins the examination of the breadth and thrust of this new service. The intent is to inform counselors on the selection, procurement, training, installation, and maintenance aspects of several telephonic assistance devices now available for deaf vocational clients.

Neither this paper nor the full study report attempts to evaluate any of the devices. The performance aspects simply are presented in a descriptive fashion to make it easier for rehabilitation personnel and their clients to judge the applicability of a particular product to specific client needs.

The Importance of Telephonic Assistance Devices to Deaf People

The major obstacle faced by deaf people in attempting to function meaningfully in a world populated predominantly by hearing people is the enormous communication problem which their hearing disability imposes upon them. A person deaf from birth, or deafened in his early years, will usually have difficulty developing speech that is readily understandable. Thus, the problem is frequently expressive as well as receptive. Attempts to bridge this communications gulf through lipreading, written exchanges, or manual signs are error prone, tedious, or of limited applicability. Moreoever, when it comes to telephone communication, universally used by the hearing population, these visual substitutes become completely useless. Dependence on telephone usage is typically so casual that it is difficult for a hearing person to fully comprehend the impact which the isolation of "phonelessness" imposes on the operational, social, business and emergency aspects of living.

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Most people, even professionals, do not realize how many calls hearing people make daily in their work, for both vocational and informational purposes. A deaf person has the same needs as one who hears for communication; without assistive devices, however, he or she must either physically travel to the other location to provide an answer to an inquiry, or ask a question; find someone to "fill in" as a telephone interface, or simply not communicate. Because deaf people perform a wide range of occupations, their communication needs differ greatly. A deaf physicist or mathematician, for example, may need to use a device that will permit transmission and reception of sketches, formulae, and non-standard data. A deaf library services assistant may need only a quiet teletypewriter to respond to inquiries. Both probably need a device to communicate with family and friends. Therefore, in selecting a telephone communication assistance device for a working deaf person, special consideration must be given to the full range of the individual's communication needs and capabilities.

Of course, if a person is only moderately hard of hearing, telephone amplifiers may be adequate. If a deaf person's speech quality is such that he can be understood on the telephone, he may wish to do his own speaking, using a device or third party assistance only to inform him of what is being said at the other end of the line.

At present, the vast majority of telephone usage by deaf people involves the assistance of a hearing family member, neighbor, or associate. For example, the hearing person may initiate a call on behalf of the deaf person, communicating verbally over the phone whatever the deaf person wants him to say. The verbal response over the phone would then be relayed to the deaf person. This cycle of interaction, with the hearing person acting as intermediary might repeat many times in the course of the call. The disadvantages of communication that requires a middle man are obvious.

OVERVIEW OF THE TECHNOLOGY AND APPLICABLE DEVICES

General

For several years manufacturers have been producing various equipments that have been used, to a limited extent, by rehabilitation personnel and rehabilitation clients to ameliorate the telephone communication hardships imposed by deafness and similar communicative disabilities. Basically these devices divide into the following categories:

1. Teleprinters, commonly referred to as "TTY's"
2. Facsimile units, often referred to as "FAX" machines
3. Telepens, sometimes referred to as "remote scratch-boards" or "telenotes"
4. Visual/tactile communicators, sometimes referred to as "code coms" or "sensicalls"
5. Modified handsets (amplified speech units) for standard telephones
6. Special purpose terminals.

The names and addresses of several companies and groups making or reconditioning telephonic assistance devices for deaf and communicatively disabled persons are provided in Appendix 1.

It should be pointed out that, although various techniques and devices are described in terms of their use by deaf people, many apply equally well to hearing people who have major speech impairments.

Teleprinters (TTY's and Related Devices)

To date, the most significant development facilitating telephone communication with and between deaf people has been the teleprinter. The term "teleprinter" is used here in a generic sense to cover a wide range of electro-mechanical teletypewriters[1] (TTY) produced by such U.S. firms as Teletype, Western Union, Mite, and Kleinschmidt, and such European firms as Creed, Lorenz, and Great Northern. These electro-mechanical units are usually keyboard send/receive devices, having a keyboard for input and providing typed hard-copy output. The all-electronic units have either a self-contained display or use a TV-display (see Appendix 2).

When this equipment is interfaced to standard telephones through special couplers (often built-in), communication takes place by the separate parties alternately typing their portions of a conversation. Whatever is typed on one end of the line appears on both the sender's and the receiver's units, thus providing each with a record of the call. Nearly 5,000 such units are in use at present in the homes and offices of deaf people, as well as in schools, churches, rehabilitation agencies, and the offices of other public and private organizations serving the deaf. These installations include police stations and other activities especially equipped to provide emergency services to U.S. deaf persons who have teletypewriters.

All of the electronic devices utilize transient displays instead of printed "hard copy" as in the case of teletypewriters. There is no question but that hard copy output is frequently desirable and often necessary. First, it reduces the level of attention that must be paid to the message as it is being generated; the smaller the display capability of a unit, the more critical this factor becomes. Second, it provides a permanent record of the conversation in quickly readable form for easy future reference. This capability tends to be less important for short calls on a single subject than for conversations that are lengthy or complicated, unless they are of an emergency nature. Since calls made from other than a person's own house or work location tend to be of the short, single-subject variety, it is relatively less important for the sender to have a hard copy capability than for the device to be portable.

It might be argued that a printed copy of a telephone conversation is "gilding the lily." People who hear do not typically get a permanent record of their calls. Nevertheless it is quite common for a hearing person to selectively make his own hard copy by jotting down key points, addresses, directions, etc. This is much more difficult for a deaf person to do while he is visually attending to a transient output display. Then too, a frequent by-product of an early hearing loss is reduced mastery of written language, manifested in terms of lower reading levels and shorter retentive memory for this kind of material. These factors, therefore, also support the case for hard copy and, together with cost considerations, perhaps explain the continuing popularity of teletypewriters despite their age, lack of portability, increased maintenance requirements, noise, appearance, etc.

Modern Electronic Teleprinters

In general, deaf people still do not understand and, therefore, have not yet accepted the wide variety of telephone-related devices available to them. In addition, until recently, the availability of free or low cost teletypewriters (TTY's) has preempted most searches for other alternatives. Consequently, the deaf community has relied to date on reconditioned teletypewriters as its major alternative mode of telephone communication.

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[1] Teletypewriter is a registered trademark of Teletype Corporation that has developed into common usage to describe a group of devices.

New teleprinter-type developments involving the use of television screens have recently come on the market. Two such products are the HAL Communications units[1] and the TV-phone.[2] These devices do not have a self-contained display, but do possess the necessary electronics to permit the keyed message to appear on the screen of a television set to which they are connected.

Other teleprinter-type developments that have been introduced use a new type of "soft-copy" (or evanescent display) using light-emitting diodes (LED's). Two such products are the MAGSAT[3] and the MCM equipments.[4] These units have self-contained displays and are the smallest and lightest weight units on the market at this time. They both have a multiple character display that extends across the units just above the top row of keys. Selective activation of light emitting diode (LED) segments allows each register position to display any of the alphabetic, numeric, or special characters that appear on the keyboard. As each key is depressed the corresponding character appears in the right-most position of the register, shifting the register contents one position to the left. As keying progresses, the message moves across the display and disappears off the left-hand end. Unlike the Times Square type of display, the message does not move smoothly, but travels along irregularly depending on the typing characteristics of the sender.

All of these units differ from the standard teletypewriters in that they provide no hard copy record of a conversation. However, if a record is desired, it can be obtained by recording the acoustic tone-code on a cassette unit. Thus, it is possible not only to view, on the television screen or LED display, a delayed replay of sections of a previous conversation, but also to compose a message for later transmission. When the survey was initiated in February 1974, rumors of other new devices of this type "soon to be introduced" were rife, but no substantiation for these rumors was found.

Sources of New and Reconditioned Teleprinters

New units are only available from the respective manufacturers or their specified agents or marketing associates. Reconditioned or used teletypewriters are units that have been donated by the Bell Telephone System operating companies, Western Union Telegraph Company, various military and governmental agencies, amateur radio operators, etc., and are available through agents of Teletypewriters for the Deaf, Inc., (TDI). This not-for-profit corporation was formed in 1968, in a cooperative effort by the National Association of the Deaf and the Alexander Graham Bell Oral Deaf Adults Association for the purpose of coordinating the acquisition and distribution of surplus teletypewriters to deaf people. Units are also available at a low cost to agencies or activities providing services to deaf people who have need of such devices. Dr. H. Latham Breunig, founder (now Secretary) of Teletypewriters for the Deaf Inc., coordinates its various activities.

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[1] HAL Communications is the trademark of HAL Communications Corporation, Urbana, Illinois.

[2] TVphone is a trademark of the Phonics Corporation, Silver Spring, Maryland.

[3] MAGSAT Communication System is a trademark of MAGSAT Corporation, West Hartford, Connecticut.

[4] MCM Communication System is a trademark of Sico Corporation, Oakland, California, in cooperation with Micom Industries.

More than 95 deaf people, all over the United States serve as authorized agents of TDI to help interested parties locate used teletypewriters and get the equipment reconditioned and installed in their homes or offices. The necessary modem/coupler is purchased from one of the three firms which manufacture them. TDI members receive up-to-date directories of other stations in the network.

Operation of the TTY

To use a teleprinter, a deaf person places the telephone handset in the coupler and dials the party he wishes to call in the normal fashion. However, a special means of determining the telephone line status and the progress of the dial-up operation is used. This is done by watching an indicator light that monitors the sounds on the telephone line. A steady "on" light initially shows the presence of a dial tone, a quick-paced, intermittent "on-off" light indicates a regular ringing signal which stops when the other party answers. At that time, the caller types a brief "hello" message on the TTY keyboard to alert the other party, if he is hearing, that a TTY call is incoming. The latter will then place his telephone handset into his own coupler. If the called party is deaf, he already will have placed his handset into his own coupler and will see the "hello" appear on his unit.

Equipment Compatibility

It is important to note that each sending unit (a teletypewriter and associated modem/coupler) automatically generates and transmits a code for each of the letters, numbers, or other characters that the caller types. For the communication to be effective, it is obviously important that the person receiving a message understand the language used by the sender. Similarly, it is critical that the receiving unit "understand" the code used by the sending unit. For example, when the sending person types "H", his unit will generate a distinctive code for this letter and will transmit this code as a sequence of tones over the telephone line. The receiving unit must accept this sequence of tones and decode it as the letter "H". Not only must the sending and receiving units be in agreement as regards the codes used for the various letters, but they must also be on the same wave length, so to speak. That is, the unit which is receiving must be responsive to the frequencies of the tones produced by the sending unit. And finally, the two units must be synchronized: That is, the receiving unit must be able to accept the sequence of tones at the rate used by the sending unit in transmitting them. These, then, are the three main ingredients of compatibility: the code, the signal frequencies, and the transmission rate. All of the refurbished equipments supplied through TDI are compatible.[1] Singe the moden/coupler[2] interfaces the teletypewriter to the telephone line, it bears a major burden in assuring this compatibility. When a call is being placed a monitor light associated with the coupler indicates by its pattern of flashes whether the line is busy, the phone is ringing, or the phone has been answered.

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[1] They almost all use the five-bit Baudot code (5-level code) and operate at the same rate (45.5 bits per second).

[2] The standard modem/coupler presently used throughout the deaf community uses the 5-level code and operates at 1400 and 1800 Hz signal frequencies, based on R. Weitbrecht's original unit.

Optional Accessories to Aid TTY System Operation

In addition to the required modem/coupler, there are a number of special features which are optional. Signaling devices exist which will cause a table lamp, or some other house light, to flash when there is an incoming call. Some teletypewriters have an Automatic Send/Receive (ASR) feature. Punched paper tape is used to speed the transmission of lengthy messages. This capability may be particularly worthwhile when long distance calls are involved. Another useful feature will automatically "answer" the phone, turn itself off, and "hang-up" the telephone. In other words, properly equipped, the teletypewriter can take phone messages when no one is at home.

Operational Difficulties

To avoid receiving voice calls which they would be unable to answer (e.g., commercial soliciting), most deaf subscribers arrange to have private numbers, unlisted in the regular telephone directories. Such listing does not, of course, eliminate the nuisance of wrong numbers. Occasional consternation arises from recorded messages such as, "your call did not go through. Please hang up and dial again" or when a discontinued number has been dialed and the operator comes on the line to ask "May I have the number you were calling, please?" The dialing of some long distance calls is not fully automatic and requires operator assistance. In such cases, some deaf people use a continuous audio tape loop, prerecorded by a hearing friend, to provide the operator with the information necessary to complete the call.

Costs of Acquiring and Operating a TTY

The minimum one-time expense associated with installing a teletypewriter is probably about $200.00. How much more than this minimum a specific installation will cost depends on many factors — cost of the teletypewriter itself in case it was purchased new or used rather than being donated, extent of reconditioning required, model of modem/coupler purchased, and optional special features obtained. It is certainly possible to pay more than $1000.00, but typical installations probably average from $230.00 to $350.00. In addition, of course, there are continuing operating expenses — the telephone company's regular monthly service charge, long distance tolls, paper and ribbon supplies, and equipment maintenance.

This last item, maintenance, is significant in that the older machines, even though carefully reconditioned, already have lived a full life. Therefore, in situations where a high volume of telephone traffic is anticipated — such as either an office or in a central location for several people's convenience — frequent maintenance is mandatory for good service, and occasional breakdowns may be expected. The normal means of maintenance and repair for these older models is through the TDI agents. Since these agents all work at other jobs for their primary livelihood, unforeseen servicing delays may result. Also, long waits for spare parts often trouble the users of these TTY's. Unfortunately, since the electro-mechnical training of these agents varies significantly, there have been and probably will continue to be cases of poor maintenance and repair leading to the scrapping of paid-for equipments.

Summary

The Rehabilitation Act of 1973 provides in Section 103 a new vocational rehabilitation service — "telecommunications, sensory, and other technological aids and devices." The Congress is both timely and farsighted in this authorization which has tremendous implications for job development for handicapped people and for other vocational rehabilitation case services as well. The full significance of this action will probably not be apparent for some years to come. It adds a far-reaching challenge to the interesting and exciting day-to-day work of the vocational rehabilitation counselor.

With such equipment installed, the deaf person can now make independent and effective use of the telephone. To be sure, he can utilize this new found capability only when either calling from a phone location which has an installed teletypewriter or with one of the new portable electronic teleprinters, and only when calling another location which has similar equipment. Some cities have telephone answering services, equipped with teletypewriters, which allow a deaf person indirect communication with any hearing person. And in some communities, when a deaf person calls specified telephone numbers, he will receive on his teletypewriter the weather report or other news of interest. The number of teletypewriter stations has been growing yearly at an increasing rate.[1] Appendix 3, which lists Consumer-Stated Preferences for Different Equipment Features, presents the first such data available on this subject and represents the preliminary results of a nationally oriented survey initiated in Spring 1974.

APPENDIX 1

COMPANIES AND GROUPS MAKING OR RECONDITIONING TELEPHONIC ASSISTANCE DEVICES FOR DEAF AND COMMUNICATIVELY DISABLED PERSONS

Amplification Devices

1. American Telephone and Telegraph Co.
   195 Broadway
   New York, New York 10007
2. Hearing Aid Manufacturers
3. Numerous Specialty Electronics Firms

Non-Profit Groups Distributing and/or Reconditioning Equipment

1. Teletypewriters for the Deaf, Incorporated (TDI)
   P.O. Box 622
   Indianapolis, Indiana 46206
2. The Telephone Pioneers of America
   608 13th Street
   Washington, D.C. 20005

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[1] TDI estimates that as of 1974 there are presently over 7000 Teletypewriter installations in the U.S. and Canada serving deaf persons.

Keyboard and Related Device Manufacturers

APCOM Couplers	Applied Communications Corporation P.O. Box 555 Belmont, California 94002
Special Units	Cybernetics Research Institute, Inc. 2233 Wisconsin Avenue, N.W. Washington, D.C., 20007
Couplers	ESSCO Communications, Inc. 14-25 Plaza Road Fair Lawn, New Jersey 07410
HAL Units	HAL Communications, Inc. Box 365 Urbana, Illinois 61801
Ivy Couplers	Ivy Electronics, Inc. P.O. Box 1325 Alvin, Texas 77511
MAGSAT Units	MAGSAT Corporation 151 Vanderbilt Avenue West Hartford, Connecticut 06110
TVphone Units	Phonics Corporation 814 Thayer Avenue Silver Spring, Maryland 20910
MCM Units	Silent Communications, Inc. 1440 29th Avenue Oakland, California 94601

Specialized Facsimile Devices

1. TALOS Systems, Inc.
   7311 East Evans Road
   Scottsdale, Arizona 85260
2. Telautograph Corporation
   8700 Bellanca Avenue
   Los Angeles, California 90045
3. Victor Graphic Systems Inc.
   3900 North Rockwell
   Chicago, Illinois 60618

Visual Devices

1. American Telephone and Telegraph
   195 Broadway
   New York, New York
2. Robot Research (Slow Scan Television)
   7591 Convoy Court
   San Diego, California 92111

3. Stromberg Carlson Corporation
100 Carlson Road
Rochester, New York 14603
4. T.S.M., Inc. (Visual Communicator)
Annapolis, Maryland 21404

Tactile Devices

1. National Center for Deaf-Blind Youths and Adults
105 Fifth Avenue
New Hyde Park, New York 11040

APPENDIX 2

COMPARATIVE DESCRIPTIONS OF VARIOUS TELEPRINTER DEVICES

FEATURES	EQUIPMENT				
	TTY	TVphone	MCM	MAGSAT	HAL
Attractiveness a. Shape	(except for Model 32) Box-like industrial design	Modern	Modern	Modern	Box-like industrial design
b. Weight	40 lbs. (average)	8 lbs. (excluding TV set)	5 lbs.	5 lbs.	25 lbs. (excluding TV monitor at 18 lbs.)
c. Size	22" x 20" x 16" (average)	14" x 12" x 4" (excluding TV set)	10" x 8½" x 3"	12" x 8½" x 4"	18" x 10" x 3" and 14" x 12" x 4" (excluding TV monitor)
d. Portability	Not portable	Semi-portable (requires TV and AC power)	Portable	Semi-portable (requires AC power unit)	Not portable
e. Carrying Case	None	Self-contained	Separate padded unit	Self-contained	None

FEATURES	TTY	TVphone	MCM	MAGSAT	HAL
f. Colors	Green, grey, or brown (depends on model)	Beige	Red, blue, green, brown, or black	Beige	Beige
Display					
a. Size of Display	Continuous roll of paper with 72 characters per line printed out	Up to 256 characters (8 lines of 32 characters each	1 line of 32 characters	1 line of 12 characters	Up to 1000 characters (20 lines of 50 characters each)
b. Character Size	Standard typewriter size	Varies, depending upon the TV set used (3/8" on 12" TV set)	3/16" high	3/8" high	1/4" high on 12" Monitor TV
c. Character Style (all capitals)	Standard typewriter style	Block characters	Unique font style to use LED's	5 x 7 dot matrix characters in traditional style	Block characters
d. Character Color	Black or black and red with different typewriter ribbons	Black on white screen	Red	Red	White on black screen
e. Readability of Characters	Good	Good	Fair	Good	Good

FEATURES	TTY	TVphone	MCM	MAGSAT	HAL
f. Viewing Ease	Good — has paper copy for reference	Fair — Has reasonable message size, but TV screen adjustment critical and room lights may interfere	Fair, due to character shape and red color. Character shift may also cause problems for many viewers	Fair, due to character set, size and shift of characters	Good, due to large message size and white on black screen approach
Keyboard					
a. Layout of Keys	Standard Teletype keyboard	Standard typewriter keyboard	Limited Teletype keyboard	Rectangular version of standard typewriter keyboard	Standard typewriter keyboard
b. Feel of Keys	Similar to portable mechanical typewriter	Similar to electric portable typewriter	Similar to electric portable typewriter	Similar to electric portable typewriter	Similar to electric portable typewriter
c. Shape of Keys	Round (similar to older portable mechanical typewriter)	Oval (modern)	Oval (modern)	Square (modern)	Oval (modern)

FEATURES	TTY	TVphone	MCM	MAGSAT	HAL
d. Size of Keys	Standard Teletype	Standard electric typewriter	Standard electric typewriter	Standard electric typewriter	Standard electric typewriter
e. Number of Keys	32 Keys (47 characters)	44 Keys (53 characters)	33 Keys (51 characters)	43 Keys (36 characters)	48 Keys (57 characters)
Set-Up and Operation					
a. Installation	Interconnection of units, modem, and power supply requires person with prior training and experience. Tools are required for final adjustment	Connect to TV receiver antenna lead-in terminals via spring clip. No tools required.	None	None	Interconnect units via cables provided. No tools required. Detailed information is provided of a technical nature
b Training	A minimum is necessary which can be learned in brief orientation of user at time of installation and adjustment	Minimal. Usually provided by sales agent. If not, a fairly detailed instruction package is provided	Minimal. Usually provided by sales agent. If not, a fairly detailed instruction package is provided	Minimal. Agents provide initial operating instructions	Some required. As this equipment was made for persons with a technical background, assistance would probably be required initially, even though detailed instructions are provided

FEATURES	TTY	TVphone	MCM	MAGSAT	HAL
c. Operation	Reasonably simple after initial orientation is complete (including replacement of paper and ribbon)	Simple after initial orientation is complete	Simple after initial orientation is complete	Simple after initial orientation is complete	Relatively simple after initial orientation is complete
d. Preventive Maintenance	Fairly technical and requires outside assistance if user is not trained or of a technical nature and properly oriented	None, except for keeping unit clean, dry, and protected from excessive heat	None, except for keeping unit clean, dry, and protected from excessive heat	None, except for keeping unit clean, dry, and protected from excessive heat	None, except for keeping unit clean, dry, and protected from excessive heat
e. Repair Service	Provided through TDI agents, Bell "Pioneers", or specialized teletype repair service. Replacement parts often a problem with older machines	Provided by manufacturer through return of malfunctioning unit to Phonics, Inc.	Provided by manufacturer through return of malfunctioning unit to SICO, Inc.	Provided by manufacturer through return of malfunctioning unit to MAGSAT, Inc.	Designed to be repaired by owner-user with technical background. May be repaired by any competent TV service with owner-purchased evaluation manual ($10.00 additional cost)

FEATURES	TTY	TVphone	MCM	MAGSAT	HAL
f. Reliability	New machines quite reliable if maintained properly; older machines apt to give trouble unless totally rebuilt and checked regularly. Coupler problems are also possible	Fairly reliable due to use of solid-state electronics; however, limited experience data available	Fairly reliable due to use of solid-state electronics; however, limited experience data available	Fairly reliable due to use of solid-state electronics; however, limited experience data available	Very reliable units with approximately 4 years of field experience in generally competent user-owner situations. Coupler problems also possible
g. Cost	Range from free (to fully qualified deaf persons through TDI) to $800.00 for Model 32 units (exclusive of any special features such as automatic answering or tape drive)	Purchase: $995.00 Lease: $19.50 per month (individual) or $29.50 per month (institutional or commercial) (Excludes cost of TV set)	$599.00	$465.00 each ($900.00 for a pair)	$825.00 (excludes cost of TV monitor at $140.00)
h. Compatibility	Models 15 through 32 are compatible through use of a proper coupler	Fully compatible	Fully compatible	Fully compatible (company also has an 8-level unit available	Fully compatible through use of a proper coupler

CONSUMER-STATED PREFERENCES FOR DIFFERENT EQUIPMENT FEATURES[1]

(As Recorded at Two National Conferences
of and for the Deaf in Early Summer 1974)

	Equipment (Rankings are from 1st to 5th)				
FEATURES	**TTY**	**TVphone**	**MCM**	**MGASAT**	**HAL**
Attractiveness (overall)	4	2*	1	2*	3
a. Shape	5	3	1	2	4
b. Weight	4	3	1**	1**	2
c. Size	3	2	1**	1**	2
d. Colors	4	2	1*	1*	3
Display (overall)	2	3	5	1	4
a. Size of Display	4	3	2	1	5
b. Character Size	2	3	4	1	5
c. Character Style (shape)	2	4	5	1	3
d. Character Color	2	4	5	3	1
e. Readability of Character	2	3	5	1	4
f. Viewing Ease	2	3	5	1	4
Keyboard (overall)	5	3	2	4	1
a. Layout of Keyboard	5	2	3	4	1
b. Feel of Keys	5	4	2	3	1
c. Shape of Keys	5	3	1	4	2
d. Size of Keys	4	2	3	5	1
e. Number of Keys	5	3	2	4	1
Relation of **Positive** Comments to **Total** Comments for Each Equipment	**52.7%**	**64.2%**	**74.3%**	**79.7%**	**69.2%**

*No Discernable difference in survey results.

**No essential differences between devices or in survey results.

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[1] **Preliminary results from on-going study by Stanford Research Institute (Telecommunications Sciences Group), Menlo Park, California — D. Allan, J. Crandall, S. Fralick (August 1, 1974).**

VOCATIONAL EVALUATION FOR DEAF CLIENTS WEST VIRGINIA REHABILITATION CENTER

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INTRODUCTION

The West Virginia Rehabilitation Center is a comprehensive facility, utilizing a multidisciplined team approach to provide rehabilitation services to approximately 400 clients in a residential setting. Clients may enroll for a wide variety of services including vocational evaluation, vocational training, physical and occupational therapy, transitional sheltered workshop services, speech and hearing services, or prevocational adjustment services. Since the early 1960's, special prevocational programs have been in existence for the mentally retarded. A special adjustment program for the blind was established in the mid-1960's. Until 1970, no special program of vocational evaluation was established for deaf clients. The development and explanation of such a program of services to this latter group is the subject of this paper.

BACKGROUND

Although the West Virginia Division of Vocational Rehabilitation had employed a supervisor of services to the deaf and the blind for many years, deaf clients were served by regular vocational rehabilitation counselors. In 1965, the agency sent its first counselor for the deaf to the University of Tennessee for the Orientation to Deafness Program. Upon completing that ten week intensive training in rehabilitation services for deaf people, the counselor began serving the deaf clients who were enrolled at the West Virginia Rehabilitation Center. It was quickly recognized that additional trained counselors were needed to work effectively with deaf clients throughout the state. Since that beginning, the number of trained counselors for the deaf has increased yearly. At the end of the 1973-74 fiscal year, nine counselors were serving deaf and hard of hearing clients; one in each of the districts of the state. Although some deaf clients enroll from other states, the majority served at the Center are referred by one of these special counselors.

The West Virginia Rehabilitation Center has long had a strong vocational evaluation section. The input of counselors, evaluators, psychologists, social workers, various medical personnel, physical and occupational therapists and recreation workers assure a comprehensive program of vocational evaluation. Specific services geared to the vocational rehabilitation needs of deaf clients actually began with the assignment and training of special counselors. Manual communication classes were established and are now offered routinely for many of the approximately 300 employees. Many center clients with normal hearing have acquired varying degrees of skill in manual communication. The success of these classes makes the acceptance by, and adjustment of deaf individuals to, the Center much easier than in previous years. Interpreter services are provided for classes, recreation activities, assemblies, and religious services.

Until the summer of 1970, deaf clients were brought to the Center on a weekly basis for evaluation along with all clients. There were seldom more than one or two deaf clients who began Center services at the same time. It was apparent that the deaf students were not receiving maximum benefits from their experiences at the Center. Orientation of new students to the Center, evaluation, domiciliary and other facilities required considerable individual time and effort on the part of Center staff. At best, these efforts proved to be of minimal assistance to the incoming deaf student.

Center staff interested in deafness discussed the situation and presented a proposal to the administration to establish a special time to evaluate a group of deaf individuals. The advantages of such a plan were obvious — increased visibility of deafness, homogenous grouping of clients, increased feeling of belonging of the deaf clients, and focusing of staff efforts on one disability group. The plan was accepted and initial contacts were made with the West Virginia School for the Deaf. Center personnel made an extended visit to that school explaining the Center's program to both the school staff and the students. Interest in the program was generated and the necessary paperwork and examinations of deaf students began. Former students of the School for the Deaf who had profited from training at the Center were utilized to encourage students to attend the proposed special evaluation program.

THE SPECIAL VOCATIONAL EVALUATION PROGRAM

In July 1970, the first special Vocational Evaluation Program for Deaf Clients was conducted. The various Center departments cleared their schedules to accommodate a two-week initial evaluation of 20 deaf students. The staff evaluators — psychologists, psychometrists, speech therapists, and audiologists — were relieved of most routine activities in order to devote themselves to intensive diagnostic and evaluation services to the deaf clients. Although the Center's extensive medical related services were available, the basic medical examinations had been completed prior to the evaluation period. The Center staff had reviewed data collected from student files at the School for the Deaf, as well as social-family material compiled by counselors.

Recognizing the unique skills necessary in the evaluation of deaf clients, consultants in the area of deafness were added for a two-week period to enhance the expertise of Center staff in their respective disciplines. In addition to direct client services, the major goal of the consultants was to enrich the competencies of the Center staff toward providing intensive services for deaf clients. Albert Pimentel (formerly psychologist at the Tennessee School for the Deaf) assisted in psychological testing and group instruction with clients, exploring their individual personal and vocational goals. Mr. William Woodrick, Director of the University of Tennessee Orientation to Deafness Program, assisted in the areas of work evaluation testing and interpreting.

Although some changes have been made, the basic format of the program has been retained since its inception. Each summer, approximately 20 deaf clients are enrolled in a two-week period of intensive vocational evaluation. No other clients are admitted for vocational evaluation during that two weeks. The energies of the full Center staff are focused on the deaf clients, and deafness is foremost in everyone's mind.

Center staff members are thoroughly competent in their particular professional roles, and have available to them a consultant in the area of deafness with whom they may interact. The deaf client may interact with the team in supplying a multi-attitudinal plan of service. Although the Center staff remain personally responsible for administering evaluation instruments and tabulating results, the consultant offers additional breadth to the prognosis.

Each student receives the following services: Orientation to the Center, group psychometric testing, individual psychological testing, work evaluation (job sample) testing, audiological screening, general physical examination, visual examination, ENT examination, speech evaluation, and tryouts in several of the more than 20 training areas of the Center. Visits are made to various occupational settings where deaf individuals are employed in a wide variety of work assignments. Special recreational activities are scheduled for evening hours. Group counseling and individual counseling sessions are conducted daily. Staff meetings are conducted almost daily to chart progress, deal with problems, and make plans for each individual case. A final staffing is held at the end of the two-week period. Written reports and verbal input from each discipline are presented and discussed. The referring field counselors are in attendance at the staffing and are able to discuss the findings and recommendations of the Center team. Results are discussed with the client and appropriate plans are made for future services. Copies of final reports are also made available to the School for the Deaf. Whenever feasible, parents and other family members are brought in for private discussion of the deaf family member, and are given suggestions designed to enhance the client's self-esteem, achievement, and employability.

Upon completion of the 1970 initial session, it was agreed by staff participants that many of the clients who had only recently completed their school program were somewhat overwhelmed by the "adult like" Center social mores. Additionally, the need for the deaf youngster to make independent, vocational decisions produced some anxiety.

To familiarize the student with the program at an earlier age, and to begin work on attitudes of self exploration, the 1971 session received juniors, as well as seniors, into the program. Marked maturity was noted in the seniors who had participated in the prior summer session. During the second summer the student tended to rule out certain job clusters and narrow his vocational goal decisions, frequently in a very realistic relationship to his abilities.

PROGRAM REPORTING

Since the first summer evaluation session, 76 deaf people have participated in the program with only four failing to complete the evaluation. One of these four was terminated because of repeated rule infractions; the other three left of their own volition, due to homesickness or other emotional problems. This high completion rate exceeded the program planners' fondest expectations.

A total of 76 deaf or severely hard-of-hearing individuals have been enrolled. In addition to the services already listed, the clients have received an average of 2.7 tryouts in the various training programs at the Center. Thirty-four of the 73 who completed their evaluations remained for additional Center services. (See Table 1 for a distribution of training within the Center.) Nine of the 76 subsequently enrolled in post-secondary training programs. (See Table 2.) Ten went into direct placement (See

Table 3.) and six became housewives. Employment standings as of May 1, 1974, are shown in Table 4.

The program has served 39 males and 37 females. Fifty-nine came from residential schools for the deaf, and nine had attended public schools. Eight had not been in an educational setting within three years prior to the program.

SUMMARY

This special method of scheduling evaluation has proven to be effective in providing vocational evluation for young deaf adults, utilizing the facilities and services of a comprehensive Vocational Rehabilitation Center.

In addition to providing more comprehensive services to deaf individuals at a nominal cost to the agency, it has greatly helped the Center staff to develop a positive and therapeutic attitude toward accepting and serving deaf clients throughout the year.

Even though the full evaluation cannot be completed on all clients within the two-week period, initial implications for seniors are frequently indicated. The case staffing usually results in more than half of the clients moving beyond the evaluation stage into an initial training situation.

TABLE 1

AREAS OF TRAINING WITHIN THE WEST VIRGINIA REHABILITATION CENTER

Area	Number	Percent
Key Punch	9	26
Offset Printing	9	26
Hotel/Motel Maid	3	9
Janitorial	3	9
Auto Body Repair	2	6
Upholstery	2	6
Sewing	2	6
Building Maintenance	1	3
Commercial	1	3
Still in Prevocational Adjustment	2	6
Totals	34	100%

TABLE 2

POST-SECONDARY TRAINING

Institution	Number
Gallaudet College	3
N.T.I.D.	2
University of Kentucky	1
Delgado Junior College	1
St. Paul Vocational Technical Institute	1
California State University, Northridge	1
Total	9

TABLE 3

AREAS OF DIRECT PLACEMENT

Area	Number
Zip Code Sorting Machine Operator	3
Janitor	3
Building Maintenance Worker	1
Cook/Baker	1
Printer	1
Electrical Appliance Repairman	1
Total	10

TABLE 4

EMPLOYMENT STATUS AS OF MAY 1, 1974

Status	Number	Precent
Competitive Employment	40	52.6
In Training	13	17.1
Still in Residential School	9	11.9
Housewives	6	7.9
Unemployed	6	7.9
Unable to Locate	2	2.6
Totals	76	100.0%

THE PITTSBURGH COUNSELING CENTER FOR THE DEAF

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ABSTRACT

The development of a federal proposal for a counseling and community services center for deaf people to be located in Pittsburgh was based on concerns expressed nationally and locally. An initial survey of existing agencies in the Pittsburgh area indicated that deaf people were not utilizing all of the services already available to them. Contact with agencies and the deaf community pointed towards faulty communication as the main reason why services were not being provided and not being requested. The Center's focus was to overcome this communication barrier by providing supportive services to agencies and deaf consumers. In some areas of service this was not possible, so the Center has endeavored to provide direct services to be reimbursed by agencies that are responsible to the community and its citizens to see that the services are available to everyone. This approach also provides a means for the Center to become financially independent of federal monies — a long-range goal of the Center. This goal has been achieved; the Center has been operating on state and local funding for almost three years. The sources of this financial support and the services rendered are discussed in this paper.

Boyce Williams, on May 26, 1971, speaking to a workshop for selected Pennsylvania Bureau of Vocational Rehabilitation counselors working with deaf persons, said:

> "There are too many crosses in the Social Rehabilitation Services' cemetery representing programs for the deaf that have died once their federal monies were terminated. That trend must be changed."

The Counseling Center for the Deaf, an arm of the Pittsburgh Hearing and Speech Society, has been fortunate in that it has not become a Social & Rehabilitation Service (SRS) statistic. The Center's federal grant terminated in September 1971, five years after it had received its first federal money in September 1966. Through persistence and a little luck the Center has successfully changed the trend which Boyce Williams said must be changed.

The thrust of this paper is to review the progress of the Center, specifically focusing on the steps it took to become financially self sufficient while continuing to provide quality services to the deaf community. Several key areas are covered in order to bring into proper perspective the direction of the Center.

1. The development of the Federal proposal for a counseling and community service center for the deaf.
2. The initial survey of existing agencies made to establish availability of services and the extent they were being used by deaf people.
3. The steps taken to establish an effective working relationship among the Center, the deaf community, and appropriate community agencies serving deaf persons.
4. The assessment of existing services available to deaf people along with the efforts to fill these voids, while at the same time becoming financially independent of federal monies.

DEVELOPMENT OF THE FEDERAL PROPOSAL

The proposal for the Center in Pittsburgh was developed based on the results of several national surveys and conferences on the needs for services to deaf people in large metropolitan areas. Many of the needs discussed in these studies were confirmed for the Pittsburgh area by groups and organizations that directly and indirectly serve deaf people. The Western Pennsylvania School for the Deaf, the Trinity Lutheran Church for the Deaf, the Pittsburgh Association of the Deaf, DePaul Institute for the Deaf, and other organizations in addition to both hearing and deaf people in the community had been asked by deaf persons for various types of assistance. These organizations and individuals had neither the personnel nor the time to give the assistance being sought. Through their collective efforts, however, the proposal was written in conjunction with the University of Pittsburgh and submitted to the Department of Health, Education and Welfare Social Rehabilitation Services. The Pittsburgh Hearing and Speech Society was the contracting agency.

INITIAL SURVEY OF SERVICES

When the Center was established in 1966, one of its first objectives was to *determine the availability of community services and the extent to which these services were being utilized by deaf people.* Questionnaires were sent to 450 agencies in the greater Pittsburgh area inquiring as to the number of deaf people they had provided services to during the previous 12 month period. Agencies returning the questionnaires numbered 97 (22%). Of these, 37 agencies reported having had some contact with deaf clients. The type of agency and the number of deaf people with whom they had contact are shown in Table I.

Analysis of the survey's results indicated that the majority of deaf people had been seen by vocational rehabilitation agencies and the Department of Public Assistance (DPA). The vocational rehabilitation statistics are not surprising in light of the Pennsylvania Bureau of Vocational Rehabilitation's (PBVR) activities with deaf clients in the Pittsburgh area. The Bureau had one counselor responsible for taking applications on deaf students at the two schools for the deaf in the Pittsburgh area and from deaf adults. (Two deaf PBVR counselors now handle the deaf case load in the Pittsburgh area.) Services for deaf people are purchased and monitored by the PBVR from other rehabilitation agencies. Therefore, these statistics were considered to be accurate in terms of services rendered to deaf people. However, the statistics submitted by the DPA were believed to be questionable.

The DPA does not keep records pertaining to an applicant's disability, nor do they have counselors specifically designated to handle clients with specific disabilities.

It is also important that during the first five months of the Center's existence only one deaf person was referred from DPA to the Center. During this same period the PBVR had referred five deaf people.

TABLE I

Categorization of agencies serving deaf clients and the numbers of deaf clients served in a 12 month period

Agency Category	**# Agencies**	**# Clients**
Health		
(a) Medical	7	26
(b) Mental Health	4	9
Legal	3	19
Vocational Rehabilitation	6	142
Welfare		
(a) Public Assistance	5	202
(b) Counseling	7	33
(c) Recreation	1	15
Education	4	15
TOTALS	37	416

The survey also revealed that some vital services in the community were not being utilized at all, or only minimally, by deaf persons. Staffs of the mental health, educational, and legal programs reported seeing very few deaf people. Since these services are well represented and very accessible in the Pittsburgh areas, it seemed evident that deaf people were either not aware of them or were unwilling to use them. The number of referrals from these organizations, once the services of the Center were known to them, also was small, providing an additional indication that deaf persons were not using services available to them.

ESTABLISHING A WORKING RELATIONSHIP WITH EXISTING ORGANIZATIONS SERVING DEAF PEOPLE

One of the priorities in the Center's federal proposal was to establish an effective working relationship with all appropriate local community agencies dealing with welfare of the deaf people and with deaf people themselves. In essence the Center provided liaison among community service agencies, deaf organizations, and individual deaf persons.

After the questionnaires were analyzed, announcements were sent to 450 agencies in the Pittsburgh area informing them that the Center's services were available to them when they were providing services to deaf people. These services consisted mainly of interpretation, consultation, and in-service training for their staff when possible. Several agencies responded immediately by referring deaf clients they had been servicing. Where it seemed clear that the agency was attempting to abrogate its responsibility to the deaf client, contact was made with the existing agency to delineate further the role of the Center in relation to the responsibility of the servicing agency. As is discussed later, this approach was not always effective, so direct services from the Center had to be initiated immediately, due to the urgent needs of many individuals.

While disseminating information to existing public service agencies in the community, the Center was also making contact with local and state organizations of the deaf. The deaf community was informed about the Center and the services available in the community through organizational newsletters, individual contacts, and invited speakers. It was made clear that if sufficient notification was given, an interpreter would be made available for any deaf person for any situation. Over-all the response was very good. Both response and attendance by deaf people were exceptional at meetings at the Pittsburgh Association of the Deaf where guest speakers — e.g. from Social Security, from Planned Parenthood, and others, presented information about their respective agencies.

ASSESSMENT OF EXISTING SERVICES AVAILABLE TO DEAF PEOPLE

During the process of establishing an effective working relationship with existing agencies, some of the information gained from the initial survey became more understandable. There was a glaring lack of mental health/mental retardation services available to mentally ill and/or retarded deaf persons. The Department of Public Welfare (DPW) was aware that deaf clients were receiving assistance, but did not know how many or whether they were getting additional services from DPW. Many low-achieving deaf persons were being excluded from vocational programs because of their very primitive, or total lack of, communication skills. School-age, deaf children were being excluded from some educational programs for reasons ranging from "unable to profit from further education" to "behavior problems." The Center became aware of a large number of deaf people, ranging in age from 15 to 60, who had no previous educational, vocational, communication, or independent living skills. Families of these deaf people had kept them isolated until struck by the realization that they would not always be around to "care for" their deaf child or relative. In many cases the family simply placed the deaf person in an institution to have him or her "out of the way" or for "care." Many of these deaf persons were not mentally ill.

Several different approaches were required to bring these deaf people into the mainstream of society and enable them to function independently.

The Mental Health/Mental Retardation (MH/MR) Approach

The first breakthrough in this area came early in the Center's existence. A psychiatrist, working at a local state hospital (Dixmont) informed the Center about a young deaf girl with whom he had been working. His success had been negligible due to his lack of manual communication skill. The Center's director volunteered to interpret for the psychiatrist, while at the same time introducing him to the problems of deafness and emphasizing the total lack of mental health services for the deaf. The psychiatrist became deeply involved in trying to establish a program for the deaf at the hospital but his initial attempts failed. An in-service program was established, however, to maintain staff interest in deaf clients. One staff member, very sensitive to the mental health problems facing deaf people, took a leave of absence from the hospital to return to graduate school and become qualified to direct a mental health ward for psychotic deaf persons. She returned to the hospital and, with the administration's cooperation, established such a ward with no financial assistance other then the hospital's own resources.

The Center continued to be involved with the activities of this ward, providing in-service training to staff members and consultation to its director. These efforts led to a contract between the Center and Dixmont State Hospital which has permitted the Center's staff to become still more involved. In addition to the above assistance, the Center now provides psychological and evaluation services as well as basic communication classes for the deaf patients. The establishment of the Dixmont program for psychotic deaf patients made it one of only four known programs providing in-patient care for psychotic deaf persons.

While working with and helping to establish the Dixmont program the Center attempted also to provide out-patient MH/MR services to deaf people in the Pittsburgh area. The MH/MR Program of Allegheny County was mandated in 1966 to provide such services to all residents of Allegheny County. The geographical nature of the MH/MR setup made direct services to deaf clients extremely difficult. Allegheny County was divided into 11 Base Service Units (BSU) with each BSU responsible for all clients in a specific geographic region called a catchment area. In-service programs and staff training at each BSU to provide direct services to deaf clients have not been realistic for several reasons. First, the number of deaf clients seen by each BSU ranges from 0 to 10, so that training staff people that may never see a deaf client would not be feasible. Also, the BSU's client load is extremely heavy and it is highly unlikely that an administrator would take time for an in-service program that would deny time to hearing clients. Further, the demands placed upon psychiatrists preclude their taking time off for any in-service programs. The personnel turn-over rate at the BSU's also is high, and investing time and expense in training a person who soon may leave or be promoted would not be justifiable. And finally, the Center's staff has not been sufficient to allow for the considerably larger amount of time necessary for in-service programs at 11 BSU's.

To solve these problems of serving the deaf at the BSU's, the Center submitted a proposal to the MH/MR Program of Allegheny County requesting program funding for direct provision of MH/MR services to deaf clients. Such a program was considered meritorious but funding was unavailable to the Center for several reasons: The MH/MR Program's budget had been cut for 1970-71; the Center had to be licensed as a psychiatric out-patient clinic, and; the Center was still receiving federal monies which made it ineligible for MH/MR funds since these were considered "last" monies. The last two of these obstacles were overcome by October 1971, but the first, lack of funds, persisted until late 1972. In December 1972, the Center was awarded $20,000 for MH/MR services to mentally ill and mentally retarded deaf clients on a fee-for-service basis rather than a program funded basis. The Center's allotment for 1973-74 is $25,000.

This meant that deaf persons having mental-health/mental-retardation problems would be able to receive the full complement of services both in and out of a hospital setting within the allotted funding allocation. Deaf patients would no longer be put in state hospitals, forgotten and neglected, because of the inability of the staff to communicate with them. Continuity of MH/MR services for deaf clients had been achieved through the development of an atmosphere of cooperation between the Center, the BSU's and Dixmont State Hospital.

The Vocational Approach

Several of the agencies in the Pittsburgh area that provide vocational training, diagnostic and evaluation services, and sheltered workshops experiences were either denying these services, or providing very minimal service to low-achieving deaf persons because of their lack of, or very primitive, communication skills. In this case it was simple to go into an agency and provide in-service training to key staff persons regarding the psychology of deafness along with basic manual communication skills. The crux of the problem, however, was the deaf person himself — he needed basic communication skills, pre-vocational orientation, knowledge about activities of daily living, and basic education.

Since the necessary training was vocational in nature, it fell under the responsibility of the PBVR. The local district administrator of this agency was asked to outline the vocational services the Center could provide to PBVR's deaf clients. It was emphasized that the services were not being duplicated in the community by existing agencies. The administrator agreed with the need for such services and recommended that the Center apply to the PBVR to become an approved agency from whom they could purchase services on a contractual basis. However, the reimbursement factor paid by PBVR according to its fee schedule does not meet an agency's cost of providing the service, i.e. PBVR pays $5 an hour for tutoring; $7.50 an hour for interpreting; and $5 an hour for sign language instruction. The actual costs to the agency including staff time, administration, rent, utilities, consumable supplies and other expenses greatly exceeds these fees; consequently, it was imperative to seek additional financing.

The low-achieving deaf client generally needs a combination of services. To request authorization from PBVR for each particular service not only was not feasible, but the Center could not absorb the additional costs involved. Therefore, the Center wrote a proposal to the PBVR outlining the unique problems which deaf people present and the services they need to make them vocationally feasible. The total package of Personal Work Adjustment and Training (PWAT) was estimated to cost $53 a week. After much delay and rewriting, the contract was signed in 1970. The PBVR has since raised the rate to $58 a week. The contractual agreement allows the Center considerable flexibility in working with deaf clients, enabling the different facets of training that are needed in a vocational training facility or on the job training to be highly individualistic.

The Department of Public Welfare Approach

First survey results showed that a considerable number of deaf people were on public assistance, although the veracity of the reporting was questioned on several counts. Nevertheless, it was important to ascertain whether or not this segment of the deaf population, regardless of size, was receiving the services offered by the DPW. Initially it was found that very few deaf people were availing themselves of the DPW's social services. Again, the problem of communication was one of the principal reasons.

To make social and interpreting services more readily available to the DPW's deaf clients, the Center wrote a proposal under the Social Security Act, outlining services similar to some of those the Center already offered to PBVR's deaf clients, and Allegheny County MH/MR's deaf clients. The proposal was necessary because some deaf clients of the DPW were not eligible for the services offered by PBVR and the MH/MR Program.

The first proposal was submitted in 1972. It had to be rewritten several times because of regulation changes made by the state and federal governments. Funding for the Center's DPW program for deaf clients came 75% from the state and 25% from the United Way of Allegheny County of which the PHSS, and thus the Center, is a member agency. The proposal was approved in late 1973 and services were begun in February 1974. This contract — the largest held by the Center — totals approximately $51,500.

It may be of interest that since February the Center has provided services to 46 individual deaf clients under the DPW contract. Another 27, who are on public assistance, are receiving services through either the PBVR or the MH/MR Programs. The DPW contract limits services to clients in Allegheny County. It is estimated that approximately 40 deaf clients outside of Allegheny County would be eligible for services if they were available.

The Educational Approach

The educational needs of deaf persons in the Pittsburgh area were at both ends of the educational continuum — needs of school aged deaf children and needs of adult deaf people.

The latter group could be taken care of more easily than the former because the need had already been demonstrated through research and national meetings. In the Center's Federal proposal specific monies were requested to conduct adult education classes for deaf people. During the first four years of the grant, classes were held annually; courses included: Basic Consumer Education; Speech Reading; Basic Mathematics; Basic English and English I; Cake Decorating; Typing; and other courses requested by the deaf community. The classes were well received as reflected by the initial turnout and subsequent attendance.

During the fifth year of the grant no educational monies were requested because the need and success of the program had been well established. (It should be mentioned that the Center's fifth year proposal request was for $38,307 — a little more than one half that of the previous year. Clearly a giant step towards a self-sustaining Center had been taken.) The responsibility for conducting adult education classes for deaf people was now felt to rest with the Adult Basic Education (ABE) Program of the city and state. Some initial groundwork was done by the Center in this direction. A deaf leader in the community returning from a Deaf Adults With Need Workshop in California took up the effort to establish an ABE program in Pittsburgh in conjunction with the city schools. The Center cooperated in every way possible. An ABE program was initiated and has been conducted for deaf adults in Pittsburgh for the past two years.

Meeting the needs of school age deaf children who were excluded from special programs in and outside the Pittsburgh area was a more difficult task. This was because living arrangements for the students often had to be provided and, since they had already been excluded from existing special programs new resources had to be developed. Several agencies that met the criteria needed for successful placement of these deaf students were contacted. The most receptive was the Home for Crippled Children (HCC) where educational, residential, medical, and recreational activities were available. The HCC agreed to accept deaf students with the understanding that the Center would provide supportive in-service help to the HCC staff, and would also assume some of the responsibility for the educational and vocational planning for each deaf student.

The HCC purchases supportive services from the Center such as counseling, in-service training for their staff, P.A.T. and vocational placement services for their students. Because of this working relationship several young deaf adults from a state hospital in the eastern part of the state have been sent to the HCC which is the only known facility in Pennsylvania that will accept "disruptive" deaf students. Two referrals have also been made to the HCC from West Virginia. The coordination of services among the Center, the HCC and other agencies has worked out extremely well, benefiting deaf students who might otherwise have been isolated in state hospitals or at home.

ACTIVITIES OF DAILY LIVING AND HOUSING APPROACH

Transitional Living Services (TLS) is an agency in the Pittsburgh area providing housing and activities of daily living for clients being released from state hospitals and referrals from the community. In recent years the number of persons being released from state hospitals in Pennsylvania has increased considerably. Because of the supportive services offered to agencies by the Center, TLS has accepted approximately 14 deaf clients from state hospitals and five deaf persons as community referrals. The normal procedure followed for deaf clients is placement in a group living situation. While learning activities of daily living at TLS the deaf client is enrolled in the Center's PWAT primarily to learn communication skills. Many of the skills taught are reinforced by cooperating agencies through close liaison between counselors assigned each client. The Center assigns a counselor to attend TLS staff meetings when deaf clients are concerned. This is also true of other agencies involved with deaf clients. From the group home situation the deaf client is moved into a supervised apartment and then, when ready, into an independent apartment. Attempts are always made to have at least two deaf persons in the same apartment. This endeavor precluded having the same situation occur in the community that was so prevalent in state hospitals — that of isolation from other deaf people.

Due to the effects of institutionalization most of the deaf people entering TLS are not ready for jobs. Therefore, application is made for public assistance from the state. Eligibility for public assistance generally implies eligibility for Medical Assistance coverage. The Center, being a licensed psychiatric out-patient clinic, is authorized to bill the state for psychiatric services rendered to deaf clients who are mentally ill or mentally retarded. This source of funding provides approximately $20,000 annually for services rendered.

CASE STUDY

At this point, a brief description of the planning and programming of a typical deaf client being referred to the Center may be useful.

V.S. was referred to the Center by one of the nearby schools and hospitals because they "had no program that is appropriate for V.S.'s needs." The hospital had contacted the PBVR on V.S.'s behalf and authorization was secured for a psychological test to be given by the Center's psychologist. In the psychological report, V.S. was described as:

> "An 18 year old black female who has had a deprived childhood and has been in an institution since an early age. Her parents are now known . . . V.S. wears a hearing aid and corrective glasses. She appears to be slightly [affected by] cerebral palsy. She has little speech due to her hearing impairment . . . . She was able to persevere in a task for a little while, and then felt discouragement and gave up, but was easily persuaded to continue to work for a little while longer. She was responsive to praise and encouragement and very sensitive to any criticism. She tended to rush through the things she already knew thus committing some unnecessary mistakes. However, she went to work slowly and cautiously in the tasks she was not familiar with . . . . Test results in the performance scale of the WAIS indicate that V.S. is presently functioning at the borderline level of intelligence with a performance I.Q. of 73. She exhibited good rote learning ability (dull normal level) and low average ability to assemble parts into coherent and meaningful wholes when a model is provided. However, when she had to imagine the model, her performance level decreased . . . . She will appear capable of living in a residential setting such as Transitional Living provided some kind of supervision and emotional support is provided. Otherwise, her limited understanding of the complexities of human interaction may cause some emotional commotion."

A staff meeting was held to discuss the feasibility of V.S. entering the Center's program and, if she were accepted, other programs that could be utilized to make her transition from a hospital situation to a community setting as healthy as possible. V.S. was considered a good candidate for our program but one of the counselors felt that she was "too immature and emotional to function independently in the community immediately." Based on the information from the hospital, the psychological report, and initial interview, it was decided that the HCC would be more suitable.

The PBVR sponsored V.S.'s stay in the HCC while she attended the Center's PWAT program (the HCC purchased the services from the Center). After 12 weeks it was decided to enroll her in the diagnostic and evaluation program at the Vocational Rehabilitation Center of Allegheny County. Based on the reports received from them, it appeared that V.S. was ready for employment as a kitchen helper, bus girl, or food preparer. The Center contacted a caterer at a local college with whom other deaf clients had been placed and inquired about employing V.S. He agreed to do so on a trial basis. During the second week of employment, V.S. moved out of the HCC and into a supervised apartment of TLS. V.S. has been working successfully for seven months while functioning independently in the community. She is still seen by the Center in weekly group meetings which gives her a sense of security and the positive reinforcement that she needs.

Unfortunately, not all clients are as successful as V.S. in their adjustments to community living and the world of work. Some deaf clients seen at the Center have been placed vocationally two and three times unsuccessfully. After long periods of institutionalization, sometimes as long as 35-40 years, it is extremely difficult for deaf clients to adjust to a structured work situation. The adjustment to community living has been much more successful, for two reasons: The supportive help and cooperation among agencies involved with the clients insures success; and the demands placed on the client in the community are not great enough to cause a relapse. The two go hand in hand.

CONCLUSIONS

In conclusion, as a taxpayer, the deaf individual is entitled to all services available to the community at large. The function of a community services agency in relation to the deaf is basically to identify services generally available, to survey their availability to the deaf person, and finally, to assure the participation of the deaf person.

It is vital, however, to act as an active middleman with deaf organizations and people to assist them in their active participation in pursuit of their rights. Unless the latter is done successfully one finds the potential for another funeral dirge to the graveyard of service agencies. Without deaf participation no real pulse can be taken of needs and trends.

THE UTILIZATION OF MEDIA IN THE VOCATIONAL REHABILITATION PROCESS

Robert Gonzales, Ed.D., Associate Professor
University of North Florida

On March 4 through March 7, 1968, a conference entitled, "Habilitation through Media," was held in Knoxville, Tennessee. The conference was supported by the Social and Rehabilitation Service (Rehabilitation Services Administration) and Captioned Films for the Deaf. It dealt with the utilization of new media in the vocational rehabilitation process employed with multiply handicapped deaf people.

The important characteristics of the multiply handicapped were defined as: severely limited communication skills, inadequate formal education, inadequate social effectiveness, secondary physical and mental disabilities, low occupational attainment and poor vocational adjustment. These handicaps would necessitate intensive, highly specialized, and long term training procedures appropriate to the person's needs. (Lloyd, 1968).[1]

The conference was attended by over 90 professional people in the areas of education, media, rehabilitation, industry, and psychiatry. The workshop was organized around three major divisions: (a) Demonstrations of the various media, (b) Development of materials for use with media, and (c) Identification of problem areas, recommendations, and suggested guidelines.

The third division mentioned above is the concern of this paper. At the completion of the workshop, the various group discussions led to 17 recommendations.

In an effort to survey the impact of these recommendations, the investigator developed a follow-up study questionnaire which was distributed to twenty vocational rehabilitation counselors in the State of Florida.[2] Ten questionnaires were returned. Two of the respondents were supervisors, two worked with all handicapping conditions; five specialized with only deaf clients, and one was assigned to a school program for the mentally retarded which included deaf clients. The results of this sample survey suggest a level of national utilization of media by state rehabilitation counselors who work not only with the multiply-handicapped deaf, but with deaf clients in general.

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[1] Lloyd, Glenn T., "Habilitation Through media." A conference on utilization of new media in the vocational rehabilitation process with multiply-handicapped deaf people. Department of Special Education and Rehabilitation, College of Education, University of Tennessee, Knoxville, March 4-7, 1968.

[2] *This limited survey lays the groundwork for more exhaustive treatment. The response percentages shown by this pilot study are, in no way, to be construed as representative of the field of rehabilitation, nor do they reflect accurately the activities of the organizations or agencies mentioned. Some of the conclusions reached may be considered by some (on the basis of this study) to be overdrawn, but for the purpose of well-intentioned, beneficial effect have been left unaltered. — Ed.*

QUESTIONNAIRE

The following is the questionnaire together with the 17 recommendations and a percentage breakdown of the responses. Comments from the counselors are also included.

FLORIDA

Six Year Follow-Up Study Questionnaire on Recommendations from The "Habilitation Through Media Report"

Employment Category — Mark One
General State Rehab Counselor (All handicapping conditions)
State Rehab Counselor (Only deaf clients)
Vocational Teacher
Administrator (Please Specify)________________________

____

Other (Please Specify)____________________________

____

Agency Representing (optional)________________________

RECOMMENDATION 1: Overhead projectors should be provided for every rehabilitation counselor working with multiply handicapped deaf clients.

Do you have access to an overhead projector? YES **80%** NO **20%**

If you do have access to an overhead projector do you use it:
occasionally: **20%**, often____, never **40%**, No answer **20%**

COMMENT: (One time about four years ago).

RECOMMENDATION 2: Materials for use with overhead projectors should be developed whether by individuals or media centers, and made available through the media centers on a regional basis.

Do you have access to materials for use on an overhead projector?
YES **50%** NO **50%**

If so, could you briefly describe the material: **(Employment and Application procedures) (Training materials)**

Have you developed your own materials for use on an overhead projector?
YES **40%** NO **60%**

If so, could you briefly describe the material? **(We developed material to assist clients pass the post office civil service test.) (Employment applications and an explanation of VR)**

Are you willing to share your materials with other counselors?
YES 50% NO 10% Not Applicable 40%

RECOMMENDATION 3: Workshops designed to teach the use of hardware and techniques in the development of software should be arranged for and provided by Captioned Films for the Deaf. Personnel who should be engaged in these workshops include the rehabilitation counselors and appropriate administrative personnel.

Have you attended any Media Workshops sponsored by Captioned Films?
YES ______ NO 100%

RECOMMENDATION 4: 35mm slides should be developed and made available on a regional basis. These slides should be developed by individual counselors and media personnel as is feasible.

Do you have access to 35mm slides in your agency? YES 20% NO 80%

Did you assist in the developing of the slides? YES 10% NO 90%

RECOMMENDATION 5: Media centers should have rehabilitation personnel available on a consultancy basis or as a regular staff member.

Have you been contacted by either an IMC or Regional Media Center for assistance in media? YES ______ NO 100%

Have you attempted to contact either an IMC or Regional Media Center for assistance? YES 10% NO 90%

RECOMMENDATION 6: Single concept films should be developed which deal with the various aspects of the vocational rehabilitation process and for use in counseling and guidance situations. There should also be films developed which are suitable for self-instruction purposes in training.

Do you have access to single concept films as described above?
YES 10% NO 90%

Do you have access to films suitable for self-instruction in training?
YES _____ NO 100%

RECOMMENDATION 7: Information relating to local and regional facilities should be made available to rehabilitation personnel. This includes the four Regional Media Centers and the fourteen Instruction Material Centers.

Have you received information relating to local and regional media facilities?
YES 50% NO 50%

RECOMMENDATION 8: A media manual setting forth guidelines for the development and use of software and hardware should be developed for use by counselors.

Have you come into contact with a Media Manual described above?

YES ______ NO 100%

RECOMMENDATION 9: Specific areas should be pinpointed in which materials are needed by vocational rehabilitation counselors serving multiply handicapped deaf clients.

Not applicable.

RECOMMENDATION 10: Software should be developed which may be used for the purpose of orienting parents and other family members as to the nature and needs of multiply handicapped deaf persons.

Do you have access to software materials for the purpose described above?

YES ______ NO 100%

RECOMMENDATION 11: The use of various media to introduce a client to an employer should be investigated to determine whether this technique is practical and/or effective. It is suggested such an approach could be more economical in terms of time, for both the counselor and the various employers with whom he comes in contact.

Are you familiar with media used to introduce a client to an employer?

YES 30% NO 70%

If so, please describe: **(We use a standard resume format.) (It is composed of applications for employment and other materials.) (I am developing something in line with above.)**

RECOMMENDATION 12: There should be follow-up workshops involving smaller numbers of people who may focus on specific problems and work towards development of media which can be used in attacking these problems. Participants in such workshops will be able to share whatever materials they may have already been able to develop or which may be adaptable to one form of media or another.

Have you attended a follow-up workshop related to media and the multiply handicapped deaf? YES ______ NO 100%

RECOMMENDATION 13: Captioned Films for the Deaf should be encouraged to assist in providing the hardware for counselors, especially in the vocational rehabilitation centers.

Have you received any hardware from Captioned Films? YES 10% NO 90%

If so, please describe: **(4 each — overhead, filmstrips, carts, and screens)**

RECOMMENDATION 14: A portable kit should be defined and designed for use by the vocational rehabilitation counselor in the field. This would be, primarily, the hardware.

Have you come into contact with a "portable kit?" YES ______ NO 100%

RECOMMENDATION 15: The Professional Rehabilitation Workers with the Adult Deaf should be encouraged to establish a coordinating service or committee to facilitate the development and distribution of software materials.

Have you been contacted by P.R.W.A.D. regarding the establishment of a coordinating service or committee to facilitate the development and distribution of software materials? YES ______ NO 100%

RECOMMENDATION 16: Universities and colleges having programs in rehabilitation counselor education should be encouraged to include courses in the use of media in the rehabilitation process.

Do you have a degree in vocational rehabilitation? YES 50% NO 50%

If so, were you required to take a course in media? **(YES, 10%, for degree in Education) (NO, 50%) (40% — No response)**

RECOMMENDATION 17: RSA and CFD should be encouraged to work cooperatively wherever practicable in implementing the recommendations of this workshop.

Have you contacted CFD in any capacity during the last five years?
YES 30% NO 70%

If so, in what way? **(We received films for Junior College) (We received films, transparency masters.) (Catalogues)**

Has CFD contacted you in any capacity during the last five years?
YES 20% NO 70% No answer 10%

If so, in what way? **(Bulletins & catalogues sent) (Printed materials)**

Lastly, would you be willing to attend a workshop or follow-up workshop dealing with media in the vocational rehabilitation process with multiply handicapped deaf?
YES 90% NO 10%

If you have any reference material pertinent to counseling multiply handicapped deaf through the use of media would you please mail it in with the questionnaire.

SUMMARY OF THE RESULTS

Although 80% of the state counselors have access to the overhead projector and 50% to materials, the overhead projector is seldom used when working with multiply-handicapped deaf clients. Transparency materials developed by 40% of the counselors have been limited.

None of the counselors has attended a media workshop although 90% are willing to attend.

Slides (35mm) have not been made available on a regional basis; 20% of the agencies have access to slides.

Captioned Films for the Deaf has contacted key personnel (supervisors) and has sent information related to local and regional media facilities to 20% of the counselors.

However, 50% of the counselors reported having received some information from either the four regional centers or the fourteen Instructional Materials Centers. Only 30% of the counselors have contacted Captioned Films for the Deaf during the last six years. Hardware was sent to one supervisor.

Personnel from either the Instructional Media Centers or the Regional Centers have not consulted the state counselors regarding assistance with media. One person, or 10% of the counselors, attempted to contact either an IMC or Regional Media Center for assistance. None of the counselors had access to films suitable for self-instruction. Only 10% had access to single concept films that either dealt with the vocational rehabilitation process or were for use in counseling and guidance situations. No counselors have seen a media manual that could assist them in the development or use of software and hardware, nor have any had access to software useful for orienting parents and other family members about multiply handicapped deaf persons. Some 30% of the counselors are familiar with media used to introduce a client to an employer. 100% reported no contact with a portable kit consisting primarily of hardware for use by counselors in the field.

No counselors have been contacted by the Professional Rehabilitation Workers with the Adult Deaf regarding establishment of a coordinating service or committee to facilitate the development and distribution of software materials. No counselor having degrees in vocational rehabilitation took a course in media. The only counselor reporting such a course took it while pursuing an education degree.

IMPLICATIONS

Materials and hardware are available but are not sought after by state rehabilitation counselors in Florida. Utilization of media with this population is probably unrealistic since 90% of the counselors have not taken a course in media and none of those responding had even attended a workshop. Not until workshops or inservice training for state rehabilitation counselors for the deaf are established can ideas of portable kits, single concept films, films suitable for self-instruction, 35mm slides, a media manual, and endless other necessary materials be a reality. Since state rehabilitation counselors for the deaf know the limitations and needs of their profession, they should be heavily involved in the development of the media.

A definite need exists for another coordinated effort by Captioned Films for the Deaf and the Social and Rehabilitation Service to re-examine the media needs of state counselors serving the multiply-handicapped deaf.

AVAILABLE MATERIALS

In using any media with multiply-handicapped deaf one must clearly understand that self-instruction for this population is almost non-existent. Therefore, each type of instructional media must be used with as great a skill as is necessary to communicate and assist the most neglected members of the hearing impaired population. For the lowest functioning client, perhaps a one-minute portion of a film or two or three frames from a filmstrip is all that is necessary to reinforce a work concept. In other words, using an entire film or filmstrip may not be practical since it can require too high a level of comprehension. Each transparency, each film, each filmstrip, or whatever is as usable as the counselor's ingenuity.

In an attempt to survey the availability of materials and develop a list of resources suitable for use with multiply-handicapped deaf adults, the investigator contacted the four Regional Media Centers for the Deaf and the fourteen Instructional Materials Centers. The following list of films and sources was prepared from an annotated bibliography by Thomas W. Aiken on Vocational and Career Guidance, at the U.S.C. Instructional Materials Center-Special Education, at Los Angeles, California.

The films can be obtained from Media Services and Captioned Films, Division of Educational Services, Bureau of Education for the Handicapped, U.S. Office of Education, Washington, D.C. 20202. Each film available from Captioned Films for the Deaf is coded with a CFD number to facilitate ordering. After each CFD number is a Roman numeral (I through IX) to assist the reader in locating the film in its respective Lesson Guide. These Lesson Guides assist with the purpose, preparation, follow-up suggested activities, and resource materials of related films, filmstrips, books, and transparencies.

Before ordering any materials from the Media Services and Captioned Films Branch each supervisor must receive an account number from:

Dr. Howard Quigley, Director
Educational Media Distribution Center
5034 Wisconsin Avenue, N.W.
Washington, D.C. 20016

1. **FURNITURE WORKER**
   Black and White, 14 minutes, order #CFD 243 (IV)

   Describes the work of the craftsmen who make furniture. Shows workers as they create the furnishings to be used in the restoration of Williamsburg, Captioned for the deaf.

2. **GRAPHIC COMMUNICATION: THEY USED TO CALL IT PRINTING**
   Color film, 21 minutes, order #CFD 423 (VIII)

   Explains some of the modern trends in printing and basically how they are done. Captioned for the deaf.

3. **WHY BUDGET?**
   Black and White, 11 minutes, order #CFD 335 (V)

   Discusses the importance of the budget to individuals and families of all income levels. Explains what a budget is, how it is set up, and what is to be gained by following it. Captioned for the deaf.

4. **ERBUE RODRIGUEZ HATES SCHOOL**
   Color film, 12 minutes, order #CFD 401 (V)

   A high school drop out finds his job boring but, due to his lack of training, can do nothing to improve his situation. He discovers that learning can be meaningful and enters an on-the-job training program. Captioned for the deaf.

5. **BUILDING TRADES: HOUSEBUILDER**
Color film, 16 minutes, order #CFD 451 (VI)

How a home is built, including the methods and the materials used: illustrated. A description of each man's job and the training necessary is explained. Captioned for the Deaf.

6. **YOUR JOB: APPLYING FOR IT**
Color film, 13 minutes, order #CFD 474 (VI)

The film shows how five young people were successful in finding the jobs they wanted. Stresses where to look for a job, positive thinking, and a good appearance. Captioned for the Deaf.

7. **INSTALLMENT BUYING**
Black and white film, 11 minutes, order #CFD 206 (III)

Demonstrates the need for investigation of installment credit, contracts, and interest rates before buying on installments. The film is useful for a consumer education course on managing one's money. Captioned for the Deaf.

8. **I'M NOT STUPID**
Color film, 14 minutes, order #CFD 417 (VIII)

Presents some of the problems which may arise on the job for a deaf or hard of hearing person. Shows alternative behavior on the part of the employer or employee. Captioned for the Deaf.

9. **THE ROAD AHEAD**
Black and white film, 28 minutes, order #CFD 356 (V)

Depicts difficulties encountered by a negro youth and white youth in looking for jobs. The high school graduate finds a job with a future and convinces his friend, a drop out, that he needs a diploma in order to get a good job. Captioned for the Deaf.

10. **YOU AND YOUR WORK**
Color film, 10 minutes, order #CFD 415 (VII)

Through the story of a young man's failure in a good job and his ultimate rehabilitation and success, shows the relationship between the attitude of the worker toward his work and the results of his work. Captioned for the Deaf.

11. **WOODWORKERS**
14 minutes, black and white film, order #CFD 251 (IV)

Depicts the jobs of woodworkers in a lumbermill. Shows how they convert logs into lumber with the aid of a variety of power tools. Prepared and captioned for the Deaf.

12. **MR. BUSBOY**
8 minutes, color film, order #CFD 346 (V)

Discusses the duties of a busboy and shows how he can become an important member of the food service team. Prepared for the Deaf.

13. THE MAILMEN

18 minutes, color film, order #478 (VIII)

Explains how the mail is processed and transported. Explains the different types of services offered by the postal service. Specially designed for the Deaf.

14. MISSILE WORKERS

15 minutes, black and white film, order #CFD 248 (IV)

Illustrates occupations within the missile making industry, such as electronic assembly, sheet metal work, tool and die making, spot welding, assembly and inspection. Prepared for the Deaf.

15. MACHINISTS

14 minutes, black and white film, order #CFD 250 (IV)

Portrays the role of machinists in our industrial society. Pictures machinists boring, drilling, grinding, and broaching. Shows tool and die makers, as well as set up and layout men, working on their special tasks. Captioned Film for the Deaf.

16. LAUNDRY WORKERS

14 minutes, black and white film, order #CFD 246 (IV)

Shows how laundry is handled from the time it is brought to the laundry until it is delivered to or picked up by the customer. Depicts some special skills used by members of the trade. Captioned Film for the Deaf.

17. THE TRUCK DRIVER

16 minutes, black and white film, order #CFD 169 (III)

Dramatizes a single trip in the working life of a long distance truck driver, from the time he reports for work in Chicago, until he reaches Sandusky, Ohio. Pictures the services and operations of the trucking industry. Captioned for the Deaf.

18. PRINTERS

14 minutes, black and white film, order #CFD 245 (IV)

Describes the work of printers. Shows how the varied skills of the typesetter, proofreader, electrotyper, photo engraver, bindery worker, and mailer are used in order to put out a magazine. Captioned for the Deaf.

19. AIRPORT IN THE JET AGE

11 minutes, black and white, order #CFD 44 (I)

Describes the work of the people who make air travel possible, from the flight crews to baggage handlers. Shows scenes of the control tower and the terminal building as well as the equipment and services involved in preparing for a jet flight. Prepared for deaf audiences.

20. ALUMINUM WORKERS

14 minutes, black and white film, order #CFD (IV)

Discusses aluminum manufacture as a highly automated industry, pointing out that everything which is manufactured is on a large scale. Captioned for deaf audiences.

21. BUS DRIVER
11 minutes, black and white film, order #CFD 106 (IV)

Depicts a bus trip taken by a young boy and his father. Shows activities at a bus terminal. Explains duties of the bus driver and safety procedures on the open road as well as in the city. Captioned for the Deaf.

22. RUBBER WORKERS
14 minutes, black and white film, order #CFD 247

Portrays the role played by rubber workers in the manufacture of automobile tires. Shows the entire production cycle of automobile tires. Prepared for the Deaf.

23. BOOK BINDER
Black and white, 14 minutes, order #CFD 249

Pictures the tradition-steeped craft of bookbinders. Shows them as they assemble and bind books, rebind valuable old books, and make notebooks and ledgers. Shows their working conditions and their membershp in a union. Captioned for the Deaf.

OTHER SOURCES

24. VOCATIONAL FILM CARTRIDGES
Technicolor Company
Eothen Films, Ltd.
70 Furzehire Road
Boreham Wood, Herts, England

Super & Standard 8 mm film cartridges

Brother at Work
Dad goes to Work
Going for a Job, Part I
Going for a Job, Part II

25. METAL SHOP SAFETY AND OPERATIONS SERIES
Aims Instructional Media Services, Inc.
P.O. Box 1010
Hollywood, California 90028

Series code #1420, $950.00 (6 films)

Films on various aspects of work in a metal shop with emphasis on safety demonstration and basic operations. Tight shots illustrate vividly the close-up detailed procedures otherwise potentially hazardous to demonstrate.

26. WOOD SHOP SAFETY AND OPERATIONS SERIES
Aims Instructional Media Services, Inc.

P.O. Box 1010
Hollywood, California 90028

Series code #1440, $2,100 (15 films)

Fifteen films on various aspects of a wood shop with emphasis on safety demonstrations and basic operations. Repetitive showing will reinforce basic concepts and procedures to fortify instruction for slow learners.

27. VOCATIONAL RESOURCE PAMPHLETS
Kern County High School District
Bakersfield, California

I Hospital Laundress
II Passenger Elevator Operator
III Tree Trimmer
IV Car Washer
V Service Station Attendant
VI Supermarket Stock Boy
VII Theatre Usher
VIII Parking Lot Attendant
IX Carpet Layer's Helper
X Boxcar Unloader
XI Cook's Helper
XII Cafeteria Server
XIII Busboy
XIV Painter's Helper
XV Asphalt Shoveler
XVI Sign Cleaner Helper
XVII Fry Cook
XIX Janitor's Helper
XX Home Responsibilities

28. WHAT SHALL I BE
Coronet Instructional Materials
65 and South Water Street
Chicago, Illinois 60601

8 minute color film $105.00
Order No. 3299

A humorous cartoon fantasy explores the fun and excitement of thinking about future occupations.

29. "SUCCEEDING AT WORK" by W.W. Hudson and A.A. Weaver
Mafes Associates, Inc.
111 Barron Avenue, Box 519
Johnstown, Pennsylvania 15907

105 Transparencies #181200 $175.00
$25.00 per individual subset

180500	Making Friends at Work
180600	Good Manners at Work
180700	Learning More About your Job
180800	Following the Rules
180900	Keeping Safe at Work
181000	Keeping Healthy at Work
181100	Taking a Vacation

30. FOUNDATION FOR OCCUPATIONAL PLANNING
Society for Visual Education

1345 Diversey Parkway
Chicago, Illinois 60614

Captioned Filmstrips
$5.00 each; set of 5 — $22.50

778-1 Who Are You?
778-2 What Do You Like to Do?
778-3 What is a Job?
778-4 What are Job Families?
778-5 What Good is School?

31. 3M COMPANY
3M Center
St. Paul, Minnesota 55101

Overhead Projection transparencies — $35.00 per set

Selection can be made from over 1300 transparencies and 54 vocational subjects in this comprehensive program. Topics include clerical, drafting, auto mechanics, cosmetology, carpentry, and electronics. Complete detailed listings are available from 3M, plus order information.

32. FROM ROBERT M. EDWARDS
Fields Services Coordinator
Southwest Regional Media Center for the Deaf

42 Programs in Vocational Exploration
Reading Readiness Filmstrips

Available from:
Educational Projections Corporations
P.O. Box 1187
Jackson, Mississippi 39205

33. SPECIAL EDUCATION INSTRUCTIONAL MATERIALS CENTER
2613 Wichita
Austin, Texas 78712.
(Ms. Carol McIntosh)

Hundreds of titles of possible materials dealing with guidance and vocational education.

OTHER CAPTIONED FILMS FOR THE DEAF listed in Lesson Guides for Captioned Films I through IX include:

34. TROUBLE ON THE JOB
Color, 14 minutes, Order #CFD 529 (IX)

Shows a hearing-impaired boy on his first job. Focuses on how the boy was annoyed by the laziness of his fellow worker. Is intended to develop an awareness of cooperation with fellow workers on the job. It can be used by social counselors in guidance areas to prepare students for future employment.

35. **POSTAL WORKERS**
Black and white. 15 minutes. Order #CFD 244 (IV)

Illustrates the services which the U.S. Post Office provides for Americans. Shows how mail is handled and transported to its destination. A short description of various postal occupations and skills required is also depicted. Illustrates the basic concept of how mail is handled but is not current because of some of the outdated methods and machinery used.

36. **HOW TO KEEP A JOB**
Color, 11 minutes, Order # CFD 420 (VII)

A young man who has been laid off learns from a prospective employer what qualities are needed to hold down a job.

37. **THE PEOPLE SHOP**
Color, 16 minutes, Order # CFD 636 (IX)

Concerns hospitals, the reasons people go there and the various ways the members of the hospital staff take care of their needs.

38. **HOW CLOTHING IS MADE**
Color, 14 minutes, Order #CFD 621 (IX)

Shows how clothes are made and who makes them. It starts by observing a factory and follows the steps involved in making a boy's shirt, from the designer's sketches to its shipment to a store.

39. **A NEWSPAPER SERVES THE COMMUNITY**
Black and white film, 13 minutes, Order #CFD 195

Follows the reporting of a local news event, showing the processes of writing, editing, printing, and delivery of a paper. Describes news items, features and advertising which the newspaper brings to a community each day. Captioned for the Deaf.

40. **POLICEMEN: OUR HELPERS**
Color film, 17 minutes, Order #CFD 480

Shows and tells how policemen can help us and why they are our friends. Some emphasis on duties and responsibilities. Film especially designed for children who are deaf.

41. **PROJECT GUIDEPOST: PRE-VOCATIONAL FILMS FOR THE DEAF**
Media Services and Captioned Films
Division of Educational Services
Bureau of Education for the Handicapped
U.S. Office of Education
Washington, D.C. 20202

Series of 8 mm film sequences, 2 sets of transparencies, student guide and teacher manual.

Designed to develop instructional materials for the deaf with the goal of assisting in the process of vocational guidance. Write for more information.

42. **AIRCRAFT MACHINISTS**

Black and white film, 14 minutes, order # CFD 252

Describes the vast amount of hard work necessary to build a giant passenger plane; shows the labor involved from the first strut to the flight. Points out the growing area of employment in this industry. Captioned for the Deaf.

43. **I NEVER WENT BACK**

Color film, 16 minutes, order # CFD 233

Demonstrates the serious emotional, social and economic consequences of the high school dropout problem, tracing the history of several dropout cases. Captioned for the Deaf.

NEW FEDERAL LEGISLATION FOR THE HANDICAPPED

Edna P. Adler
Consultant, Deaf and Hard of Hearing
Office of Deafness and Communicative Disorders
Rehabilitation Services Administration

The *CONGRESSIONAL RECORD* of January 29, 1974, contains a "Directory of Federal Programs for the Handicapped" which assembles information on all Federal legislation enacted specifically for the purpose of providing services to handicapped people. It is the principal source of information on the new legislation discussed in this article. Congressional bills relating to recently proposed legislation for the handicapped which bear upon the interests of deaf people are also reviewed.

NEW LEGISLATION

The Rehabilitation Act of 1973 has as its foremost stated purpose the rehabilitation of severely handicapped people. It is described in another part of this publication and will not be referred to here except in its connection with other programs.

Supplementary Security Income Program

Title III of the Social Security Amendments of 1972 provides for the implementation of a new Federally administered and financed "Supplementary Security Income" (SSI) program for persons aged 65 and over, and for the blind and totally disabled. The SSI program, effective January 1, 1974, replaces the present State programs of aid to the aged, blind, and disabled. It guarantees a minimum income of $130 per month starting January 1, 1974 and $140 per month starting July 1, 1974 for an individual, and $195 per month starting January 1, 1974 and $210 starting July 1, 1974 for a couple.

For the first time eligibility requirements and payment support levels are uniform in all States. The definition of "disability" used for the new SSI program is the same as that now employed in the social security disability program. There is also a standard, uniform definition of "blindness." The basic requirements for elibigility to Federal SSI payments are:

1. The individual must be age 65, or blind, or disabled;
2. Total income, after certain exclusions and income disregards, must not exceed $1,560 per year for an individual or $2,340 for a couple;

3. Total resources — normally excluding the value of a home, an automobile and $1,500 of life insurance — must not exceed $1,500 for an individual and $2,250 for a couple.

Social Security Amendments of 1972, P.L. 92-603, Title III.

An estimated $1.7 billion in benefits were obligated during the January-June 1974 period from Federal funds.

An estimated 3.4 million persons will be converted from State and local assistance rolls to the Federal payment rolls and, in addition, payments will be made to 2.8 million persons newly eligible for SSI payments because the new Federal income standard is higher than the present standard in many States and because of the absence of home lien, relative support and residency requirements. This makes a total of some 6.2 million persons eligible for support under the SSI program.

Vocational Rehabilitation Services for Supplementary Security Income Beneficiaries

The Social Security Amendments of 1972 provide that blind or disabled persons who receive SSI payments be referred to State agencies for vocational rehabilitation services. The law also provides that no blind or disabled person may be eligible for benefits under the SSI program if he refuses without good cause to accept vocational rehabilitation services for which he is referred. The costs incurred by the States in providing such services are to be paid out of Federal funds.

Social Security Amendments of 1972, P.L. 92-603.

FY 1974 Estimated Obligations — $39,674,000. This amount includes $13,367,000 for start-up costs and $26,307,000 for ongoing vocational rehabilitation costs for an estimated 142,200 cases for one-half year; since the effective date of the new program was January 1, 1974.

The workload estimate of 142,200 is a projection of the potential number of vocational rehabilitation cases among current recipients under the Aid to the Blind and Aid to the Permanently and Totally Disabled program (estimated at 51,000), plus an estimated 91,000 new SSI cases.

Grants for Developmental Disabilities — Services for Projects Under the Rehabilitation Act of 1973

The local and State projects supported by this activity provide part of the cost to improve community and State institutional services for the developmentally disabled. Service support is provided through the Rehabilitation Service Projects, Hospital Improvement Program, and the Initial Staffing of Community Facilities.

The Rehabilitation Act of 1973, P.L. 93-112, Section 301, 302, 304.

FY 1974 Estimated Obligations are $12,500,000. In 1974, this program will support 440 Rehabilitation Service Projects serving 42,000 persons.

Office of Mental Retardation Coordination

This office was established in 1972 to replace the Secretary's Committee on Mental Retardation and serves (a) as a means of coordination and evaluation of the Department's retardation activities; (b) as a focal point for consideration of Department-wide policies, programs, procedures, activities, and related matters relevant to mental retardation; (c) in an advisory capacity to the Secretary in regard to issues related to the administration of the Department's mental retardation programs; and (d) as liaison for the Department with the President's Committee on Mental Retardation. It was established by the Secretary of Health, Education, and Welfare on January 26, 1972.

Estimated Fiscal Year 1974 Expenditure — $195,000.

Social Services — Aid to the Blind and the Permanently and Totally Disabled

A program providing 75 percent Federal matching funds to the States for the purpose of encouraging each State to furnish rehabilitation and other services to help needy individuals who are blind or disabled to attain or retain capability for self-support or self-care. Services may be provided under a State plan to persons who are beneficiaries of the new Federal Supplementary Security Income program, or to past or potential beneficiaries.

Social Security Act, as amended, Title VI (effective January 1, 1974).

The Social Services program also serves aged beneficiaries of SSI, and a breakdown of expenditures according to kind of beneficiary is not available. In FY 1971 and FY 1972, the amounts of $196,368,000 and $476,827,000 respectively were spent to provide such services as General information and referral, Adult and family functioning, Family planning, Consumer education and money management, Housing improvement, Homemaker and chore services, Employment and training, Health access, Alcoholism and drug addiction, Community adjustment for those with mental health or retardation or crime and delinquency problems, Adult home and community living arrangements, Adult protection, and institutional adjustment. The aged constitute the majority of persons served under this program.

CONGRESSIONAL BILLS RELATING TO PROPOSED LEGISLATION FOR THE HANDICAPPED

H.R. 13652 — introduced March 20, 1974, to amend title II of the Communications Act of 1934. This bill authorizes common carriers subject to such title to provide certain free or reduced-rate service for individuals who are deaf.

The bill proposes amending of Section 210 of the Communications Act to include at the end thereof the following:

> "(c) Nothing in this Act or in any other provision of law shall be construed to prohibit common carriers from providing free or reduced-rate service necessary for the operation of teletypewriters for personal use to individuals who are deaf or hard of hearing."

S. 2711 — introduced in the 93rd Congress, 1st Session, to allow an additional income exemption for a taxpayer or his spouse who is deaf or deaf-blind.

The bill proposes that section 151(d) of the Internal Revenue Code of 1954, relating to additional exemption for blindness of taxpayer or spouse be amended by inserting "deafness" after "blindness" in the heading. Deafness and deaf-blind are defined. The amendments are to apply to taxable years beginning after the date of enactment of the Act.

H.R. 11987 — introduced December 17, 1973 to amend the Civil Rights Act of 1964 to make it unlawful for an employer to discriminate against an individual who is physically handicapped on the basis of that handicap.

H.R. 13658 — introduced March 21, 1974 to amend the Urban Mass Transportation Act of 1964 to insure that transportation facilities built and rolling stock purchased with Federal funds are designed and constructed to be accessible to the physically handicapped and the elderly.

Under this bill the Secretary of the Department of Transportation will require that any bus or rolling stock used for mass transportation purposes and any station, terminal or other passenger loading area, improved or constructed in whole or in part with Federal funds or under authority of Federal law after June 30, 1974, be designed with features to allow utilization by elderly and handicapped persons.

S. 3381 — introduced April 25, 1974 to amend and extend the Rehabilitation Act of 1973. The bill proposes, among other amendments that section 3(a) of the Act be amended to read as follows: "There is established in the Office of the Secretary a Rehabilitation Services Administration which shall be headed by a Commissioner appointed by the President," and in section 3(b), "In the performance of his functions, the Commissioner shall be directly responsible to the Office of the Secretary." Section 304(a) (Special Projects and Demonstrations) is amended to read "$20,000,000 for the fiscal year ending June 30, 1976."

H.J. Res. 820 — introduced November 8, 1973 expressing the sense of both houses of Congress that a White House Conference on the Handicapped be called by the President of the United States.

It proposes to authorize and request the President to call a White House Conference on the Handicapped within two years of the date of enactment of the joint resolution to develop recommendations for continued research and action in the field of the handicapped, and to further the policies set forth in the preamble of the joint resolution. The conference is to be planned and conducted under the direction of the Secretary of Health, Education, and Welfare with the cooperation and assistance of such other Federal departments and agencies as may be appropriate. The conference is to bring together representatives of Federal, State, and local governments, professional and lay people who are working in the fields of the handicapped, and the general public, including handicapped persons and their parents. In carrying out his functions the Secretary is to employ handicapped persons. The Secretary is authorized and directed to establish an Advisory Committee to the White House Conference on the Handicapped composed of twenty-eight members of whom not less than fifteen are to be handicapped or parents of handicapped persons. The resolution proposes the authorization and appropriation of $2,000,000 to carry out its purposes.

Section 4 - PRIORITIES

CONGRESS ON DEAFNESS REHABILITATION

John T. Crandall, Chairman (1976)
Dr. Jack Hutchison, Past Chairman (1974)

Summary

The first Congress on Deafness Rehabilitation was motivated by the **Model for a State Plan for Vocational Rehabilitation**, which was developed by members of the National Rehabilitation Association (NRA), and the Council of State Administrators of Vocational Rehabilitation (CSAVR), and which was published by the Professional Rehabilitation Workers with the Adult Deaf. As its contribution to the utilization of the State Plan, unanimously endorsed, the Congress, by resolution, suggested and supported procedures for implementation of the plan. These, and other resolutions presented in abbreviated form below, are contained in a detailed record of the Congress proceedings. The Congress, held in Tucson, Arizona, in February 1974, was attended by 200 delegates representing each of the 50 states.

Purposes and Goals

The Congress on Deafness Rehabilitation was an outgrowth of the efforts of the NRA Task Force on Deafness and the CSAVR Committee on Deafness. A combined such services. Specifically, the purpose of this first Congress was to develop a methodology to be used in an effective thrust toward improvement of rehabilitation services for persons who are deaf. The sense of the resolutions that were passed on the final day of the Congress indicates that this first Congress reached its major goal. The implementation of those resolutions, some on a national level but the majority on a state level, will be the final proof of the worth of this first Congress.

Background

The Congress on Deafness Rehabilitation was an outgrowth of the efforts of the NRA Task Force on Deafness and the CSAVR Committee on Deafness. A combined subcommittee of the above was given the job of developing the **Model for a State Plan for Vocational Rehabilitation of Deaf Clients.** This State Plan for Vocational Rehabilitation provides rehabilitation guidelines for state services to persons who are deaf. Following the development of the Model Plan it became necessary to arrange a meeting to develop guidelines for the use of the State Plan in the several states. This meeting then became the first Congress on Deafness Rehabilitation.

Three congressional delegates from almost every state constituted the state delegations representing their state with one combined vote. Each delegate was chosen by his state organization to represent that organization at the Congress. The three organizations contacted to select one congressional delegate each included: (1) an organization consisting of persons who are deaf, (2) an organization of professional workers serving persons who are deaf, and (3) the organization of parents of deaf children. The congressional delegates from each state had all of the rights, privileges and responsibilities afforded congressional delegates including the charge to work together with the other congressional delegates to improve services to deaf persons.

Actions of the Congress

The Congress was given the vehicle of the State Plan and asked to consider its implementation as it applied to each of the states. Prior to arrival at the Congress each congressional delegate had the responsibility to review the Model Plan. While at the Congress the delegates worked with their counterparts from other states to determine the best methods to implement the State Plan in their own state. Contained in the 33 resolutions emanating from the deliberations are suggested methods for implementation of the Model for a State Plan that can be carried out by the continued efforts of the congressional delegates upon return to their states.

The delegates recognized that they did not need an additional organization to serve the deaf. What was expressed, based on their desired needs, was a need for organizations presently in existence to come together to enable them to work more effectively in mutually accepted areas of concern for the deaf community.

The committee working on priorities saw the first three priorities as supporting the development of state advisory councils on deafness in each state, the hiring by each State Division of Vocational Rehabilitation of a State Coordinator for Rehabilitation Services for the Deaf, and the development of social counseling in each state.

Other resolutions included a survey of the progress on the implementation of the Model State Plan in each of the states; short term training for personnel; encouragement to increase state vocational rehabilitation services; involvement of consumers; training of placement specialists; fiscal considerations; and follow-up services. It was further resolved that a letter be sent to every governor and state DVR director regarding the implementation of the Model State Plan within each state.

Future Congressional Efforts

Provision is made for future Congressional efforts to encompass other areas of concern to persons who are deaf. However, at the first Congress on Deafness Rehabilitation it was the wish of the delegates, as developed in a resolution, to hold a second Congress on Deafness Rehabilitation to determine the successes of the delegates in their states and to further define and plan for improved services for deaf persons through the country.

The responsibility for this second Congress was given to the newly elected officers of the Congress to work with the NRA Task Force on Deafness and the CSAVR Committee on Deafness. These officers are:

Chairman — John T. Crandall (Engineer/Parent — Maryland)
Vice-Chairman — William H. Peace (VR/Deaf — Georgia)
Treasurer — J. Charlie McKinney (VR/Deaf — South Carolina)
Secretary — Mildred M. Johnson (VR — Washington State)

Resolutions of the First Congress

The 33 resolutions passed by the first Congress will be available in their entirety in the full record of the Congress to be published in the fall 1974 in the Journal of Rehabilitation of the Deaf, along with the deliberations of the other nine committees.

The following is an abbreviated listing of the resolutions.

I. **Resolutions relating to implementation of the Model State Plan for Vocational Rehabilitation**

1. Urges increased efforts by DVR's to disseminate VR information and to improve associations with referral sources.
2. Promotes placement by counselors having special training in placing deaf clients.
3. Urges state determination of needed services for deaf people and development of adequate funding to meet needs.
4. Encourages RSA/DHEW to develop information on severely handicapped label relative to deaf persons to prevent misuse.
5. Urges state DVR's to employ counselors who are sensitive to needs of deaf people and who can communicate with them effectively.
6. Urges that deaf applicants for counselor positions be given preferential consideration if his or her other qualifications are equal to those of a hearing applicant.
7. Encourage all organizations serving deaf persons to press for objectives outlined in the State Plan pertaining to Rehabilitation Counselors for the Deaf.
8. Directs the CODR Chairman to send communications to State agencies and key personnel advocating the utilization of the Model State Plan.
9. Urges the development of full services for deaf people from all agencies by State associations and groups in cooperation with State VR agencies.
10. Directs the CODR officers to perform a survey within 6 months to ascertain the progress achieved in implementing the Model State Plan, with the results to be published appropriately.
11. Urges State VR Directors to make fiscal data available to representative groups to aid in their efforts to support DVR deaf program appropriation requests.
12. Urges State DVR's to act immediately to devise specific fiscal plans for serving severely handicapped deaf persons on a continuing basis.

II. **Special Priorities**

1. Urges that, as a first priority, Statewide Advisory Councils on Deafness be established.
2. Urges State DVR to employ qualified administrator for planning, developing, and implementing structured, identifiable VR service programs for deaf persons.

III. **Deaf Organizational Actions**

1. Urges frequent meetings between deaf consumer groups and VR Administrators relative to services and needs.
2. Directs the CODR officers to develop better communication among members of the deaf community in cooperation with the NAD.
3. Urges qualified organizations to develop increased leadership ability and involvement of deaf persons at all levels.
4. Urges establishment of state and local COSD-type organizations to meet and focus on State and local problems.

IV. Social Service Agency Programs

1. Urges development and funding of personal and social counseling services with qualified staff who can communicate effectively with deaf persons.

V. Legislative Approaches

1. Requests the NRA Task Force of Deafness to establish and perform an on-going legislative needs survey with an accompanying analysis to be distributed to the DVR Advisory Councils on Deafness.
2. CODR went on record as supporting National and State legislative review of State services for the deaf, and the development of appropriate budgets to establish and maintain these services in accordance with recommendations from organizations of and for deaf people.

VI. Education

1. Urges all State Advisory Councils on Deafness and all other organizations in the deaf community to work for the provision of adequate public education facilities for all deaf individuals staffed by competent, qualified teachers of the deaf. Further, that the programs available will permit a choice of either day or residential schooling.

VII. Public Education and Information

1. Directs the CODR officers to request the President of the United States to set aside a week to be known as "National Deafness Awareness Week."

VIII. Planning for Future Congresses

1. Establish the CODR as on-going with Offices of Chairman, Vice Chairman, Secretary, and Treasurer to develop basic concepts and carry on the work of the Congress until the second CODR should meet.
2. Encourage the NRA Task Force to plan and direct the Second Congress.
3. Direct that a second Congress be held within two years from February 17, 1974.
4. Directs that the Second Congress include a panel presentation by deaf recipients of VR services of all age groups from various states to discuss the strengths and weaknesses of rehabilitation services.

IX. Resolutions of Appreciation

1. Special vote of thanks for first Congress Chairman, Dr. Jack Hutchison, Director of Rehabilitation, Goodwill Industries, and all State Delegates.
2. Vote of gratitude to the CSAVR for their assistance.
3. Vote of deep appreciation to the NRA for their assistance.

Section 5 - MISCELLANEOUS

SUGGESTIONS FOR VOCATIONAL ADVICE TO THE DEAF[1]

Editor's Note: As has been customary in previous issues of DEAFNESS we publish here an article from history. This one, taken from the American Annals of the Deaf, Vol. LXVII, No. 3, May 1922, stimulates comparisons of present vocational and counseling programs with those of 50 years ago.

At least half a year before graduation of the pupils from the day-school for the deaf, principal, teachers, and parents ought to get together to a conference on the vocational question of those about to leave school. The head of the vocational advisory council should speak on the preliminary conditions of the various vocations suitable to the deaf, and their prospects. In the discussion to follow, parents can express their views about their own vocations and at the same time speak about the capabilities of their children, and their conduct at home. The pupils should be asked what vocation they wish to take up. It should be determined whether the pupils are fitted for these vocations. Through mutual counsel suitable vocations will offer themselves for the graduates.

Moreover, half a year before graduation, every pupil should receive theoretical, technical, vocational training in the chosen trade; for instance, to the future carpenter the names and uses of the various tools needed in the trade are explained, so that when the pupil enters apprenticeship the foreman will not find it necessary to teach him this.

It is important, however, that every pupil about to graduate positively take up that trade which agrees with him and his abilities. As is well known, parents are more anxious that the children bring home as much money as is possible — and an apprentice naturally receives at first less pay than a youthful worker. For this reason, many parents do not favor having their children learn a trade, but send them as unskilled workers into the factory.

In my duties as chairman of the employment department for the deaf and dumb, I have frequently had the experience that deaf youths who know no particular trade seldom find a steady position as workman. Owing to the constant change in places they lose their interest in the work and soon come into conflict with the law.

The employment of the deaf on certain machines without danger to themselves is possible. It is impossible, however, to employ the deaf on such machines that are controlled by sound signals, and also on such where several persons are engaged.

The vocations most suitable to the deaf are those of tailor, carpenter, shoemaker, locksmith, and dental mechanic. As under present conditions only thoroughly trained mechanics have prospects for future advancement, care should be taken that the pupils going into training fall into the hands of conscientious foremen who take their task seriously. Frequent supervision of instructors, in regard to treatment and training of the apprentice, on the part of the parents or teachers of the deaf, should be required in order to achieve the best results in the training. The bright pupils, with whom the foreman can get along more easily, require especial consideration. They must have much freedom of movement in order to be able to satisfy in general their thirst for knowledge.

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[1] *A paper translated from the German by Miss Louise I. Morgenstern.*

On the other hand, for the less gifted, the workshops in the schools for the deaf should be well fitted to take up the task of training them. Teachers of the deaf have been asked to keep these pupils in school until the eighteenth year, so that they may be able, besides continuing their studies, thoroughly to acquire proficiency in their chosen trade. I am of the opinion that this is necessary only for the less gifted among the deaf, as has been shown in Paris, where this plan is carried out.

For the training of the deaf in manual workshops, the deaf mechanic is best suited. I have made the observation that deaf tailors who were trained by deaf masters did better work than those trained by hearing masters. For this reason I try to place deaf pupils with deaf mechanics or masters. As a consequence it would be necessary to have all deaf masters registered at the vocational bureau. These masters train their young fellow-sufferers conscientiously; also they can make themselves much better understood.

Efforts should be made to get large industrial concerns to place a number of the deaf in suitable places. As far as I know, principals of schools for the deaf have at times placed some pupils in different workshops for training; whether any control has been exercised, however, to supervise the training of such deaf apprentices, I cannot, of course, tell.

For deaf girls the following principal trades are to be considered: dressmaking, bookbinding, and cooking.

The question that is now asked is this: "For what reason are employers unwilling to place or train deaf workers?" The reply that was given to me by employers when I requested them to put on deaf workers was that *they cannot make themselves understood with them* and that they do not believe that the deaf will easily learn the work.[2] On this account, the employers must be enlightened regarding the character and abilities of the deaf, and wherever there are workshops in schools for the deaf the work should be exhibited and opportunity be given the public to observe the deaf at work. Employers in particular should be invited to view the work done. In this manner it could be made possible to get them in the future to take a greater interest in the training and employment of the deaf in their own workshops or factories.

WILHELM GOTTWEISS
Chairman, Federation of the Deaf and Dumb
Berlin, Germany

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[2] *It would be no difficult matter to open the floodgates of discussion on the statement which the editor of the* Annals *has taken the liberty to put in italics.*

PART II

DEPARTMENT OF HEALTH, EDUCATION & WELFARE SOCIAL & REHABILITATION SERVICE

THE REHABILITATION SERVICES ADMINISTRATION

Edna P. Adler
Consultant, Deaf & Hard of Hearing
Office of Deafness and Communicative Disorders

The Rehabilitation Act of 1973 (Public Law 93-112) declares in Section 3(a) that "There is established in the Department of Health, Education, and Welfare a Rehabilitation Services Administration which shall be headed by a Commissioner appointed by the President." The RSA, a cooperating agency of the Social and Rehabilitation Service, which previously operated under the authority of the Vocational Rehabilitation Act, as amended, has been designated the principal agency to carry out the 1973 Act. Titles IV and V of the Act, Administration and Program and Project Evaluation and Miscellaneous, are the responsibilities of the Secretary.

The Rehabilitation Act of 1973 provides for the first time a statutory basis for the Rehabilitation Services Administration and authorizes programs to —

(1) develop and implement comprehensive and continuing State plans for meeting the current and future needs for providing vocational rehabilitation services to handicapped individuals and to provide such services for the benefit of such individuals, serving first those with the most severe handicaps, so that they may prepare for and engage in gainful employment;

(2) evaluate the rehabilitation potential of handicapped individuals;

(3) conduct a study to develop methods of providing rehabilitation services to meet the current and future needs of handicapped individuals for whom a vocational goal is not possible or feasible so that they may improve their ability to live with greater independence and self-sufficiency;

(4) assist in the construction and improvement of rehabilitation facilities;

(5) develop new and innovative methods of applying the most advanced medical technology, scientific achievement, and psychological and social knowledge to solve rehabilitation problems and develop new and innovative methods of providing rehabilitation services to handicapped individuals through research, special projects, and demonstrations;

(6) initiate and expand services to groups of handicapped individuals (including those who are homebound or institutionalized) who have been underserved in the past;

(7) conduct various studies and experiments to focus on long neglected problem areas;

(8) promote and expand employment opportunities in the public and private sectors for handicapped individuals and to place such individuals in employment;

(9) establish client assistance pilot projects;

(10) provide assistance for the purpose of increasing the number of rehabilitation personnel and increasing their skills through training; and

(11) evaluate existing approaches to architectural and transportation barriers confronting handicapped individuals, develop new such approaches, enforce statutory and regulatory standards and requirements regarding barrier-free construction of public facilities and study and develop solutions to existing architectural and transportation barriers impeding handicapped individuals.

A Social and Rehabilitation Service Regional Commissioner in each of the ten Health, Education, and Welfare regions supervises all programs and activities under his jurisdiction in his region. An Associate Regional Commissioner for Rehabilitation Services Administration is the direct RSA representative in each region to improve the partnership with State and local governments and with voluntary organizations.

The role of the Associate Regional Commissioner for the Rehabilitation Services Administration is becoming much more significant in the management of the Federal part of the vocational rehabilitation program under the steady move to decentralize Federal actions to the Regions. Organizations and agencies seeking to launch or improve activities relating to the vocational rehabilitation of deaf people should, accordingly, explore and develop insofar as possible with the office of the Associate Regional Commissioner in their region as well as their State vocational rehabilitation agency. In view of the many program needs of all categories of disabled people, the limited funds available, and possible unawareness in a given Regional office of the specialized needs of the relatively small and unvocal deaf population, the essential nature of frequent and effective communication with the State vocational rehabilitation agency and the Associate Regional Commissioner's staff is apparent.

The Rehabilitation Services Administration maintains relationships with a variety of Federal, State, and local organizations that serve or have an impact upon the handicapped. In the area of deafness and communicative disorders this may be exemplified in the close working relationships that exist between RSA and the National Association of the Deaf, the National Association of Hearing and Speech Agencies, the Professional Rehabilitation Workers with the Adult Deaf, the Registry of Interpreters for the Deaf and numerous other groups, agencies and institutions concerned with deafness and deaf people.

Individuals disabled by mental retardation, mental illness, alcoholism, drug addiction, amputations and other orthopedic impairments, speech and hearing disorders, blindness, deafness, heart disorders, cancer, renal failure, tuberculosis, congenital deformities and neurological disabilities are among those with which the State-Federal vocational program of vocational rehabilitation works.

Basic services provided by the State-Federal programs of vocational rehabilitation to handicapped people, as authorized by the Rehabilitation Act of 1973, are patterned to meet the needs of the individual client. He is provided with all necessary services which include the following:

(1) evaluation of rehabilitation potential, including diagnostic and related services, incidental to the determination of eligibility for, and the nature and scope of, services to be provided, including, where appropriate, examination by a physician skilled in the diagnosis and treatment of emotional disorders or by a licensed psychologist in accordance with State laws and regulations, or both;

(2) counseling, guidance, referral, and placement services for handicapped individuals, including followup, follow-along, and other postemployment services

necessary to assist such individuals to maintain their employment and services from other agencies, where such services are not available under this Act;

(3) vocational and other training services for handicapped individuals, which shall include personal and vocational adjustment, books, and other training materials, and services to the families of such individuals as are necessary to the adjustment or rehabilitation of such individuals: provided that no training services in institutions of higher education shall be paid for with funds under this title unless maximum efforts have been made to secure grant assistance, in whole or in part, from other sources to pay for such training;

(4) physical and mental restoration services, including, but not limited to, (A) corrective surgery or therapeutic treatment necessary to correct or substantially modify a physical or mental condition which is stable or slowly progressive and constitutes a substantial handicap to employment, but is of such nature that such correction or modification may reasonably be expected to eliminate or substantially reduce the handicap within a reasonable length of time, (B) necessary hospitalization in connection with surgery or treatment, (C) prosthetic and orthotic devices, (D) eyeglasses and visual services as prescribed by a physician skilled in the diseases of the eye or by an optometrist, whichever the individual may select, (E) special services (including transplantation and dialysis), artificial kidneys, and supplies necessary for the treatment of individuals suffering from end-stage renal disease, and (F) diagnosis and treatment for mental and emotional disorders by a physician or licensed psychologist in accordance with State licensure laws;

(5) maintenance, not exceeding the estimated cost of subsistence, during rehabilitation;

(6) interpreter services for deaf individuals, and reader services for those individuals determined to be blind after an examination by a physician skilled in the diseases of the eye or by an optometrist, whichever the individual may select;

(7) recruitment and training services for handicapped individuals to provide them with new employment opportunities in the fields of rehabilitation, health, welfare, public safety, and law enforcement, and other appropriate service employment;

(8) rehabilitation teaching services and orientation and mobility services for the blind;

(9) occupational licenses, tools, equipment, and initial stocks and supplies;

(10) transportation in connection with the rendering of any vocational rehabilitation service; and

(11) telecommunications, sensory, and other technological aids and devices.

Vocational rehabilitation services, when provided for the benefit of groups of individuals, may also include the following:

(1) in the case of any type of small business operated by individuals with the most severe handicaps the operation of which can be improved by management services and supervision provided by the State agency, the provision of such services and supervision, along or together with the acquisition by the State agency of vending facilities or other equipment and initial stocks and supplies; and

(2) the construction or establishment of public or nonprofit rehabilitation facilities and the provision of other facilities and services which promise to contribute substantially to the rehabilitation of a group of individuals but which are not related directly to the individualized rehabilitation written program of any

one handicapped individual.

Fundamental in the program is the role of the State vocational rehabilitation agency which has sole responsibility for the determination of a disabled individual's eligibility for vocational rehabilitation services and for the extension of those services. Eligibility is a three fold determination, depending upon (1) the individual having a disability, (2) it being vocationally handicapping, and (3) resources being available by which he can be rendered employable at a level appropriate to his total characteristics.

IMPACT OF THE REHABILITATION ACT OF 1973 ON DEAF PEOPLE

In its declaration of purpose, the Act states that individuals with the most severe handicaps are to be served first so that they may prepare for and engage in gainful employment. The term "severe handicap" is described in the Act as meaning a disability which requires multiple services over an extended period of time. Inclusion of deaf persons in the classification "severely disabled," stipulated by the Act, is of great significance to their vocational rehabilitation in the over-all implications of the mandates and authorizations in the legislation.

Section 102 Individualized Written Rehabilitation Program

The Act requires that in the case of each handicapped individual an individualized written rehabilitation program shall be developed jointly by the vocational rehabilitation counselor and the handicapped person and be reviewed annually to afford opportunity for joint redevelopment of its terms. In the case of deaf individuals, this requirement creates unique difficulties for rehabilitation counselors not conversant in manual communication. Increasingly, as they become more available, certified interpreters capable of communicating with deaf persons on whatever language level may be indicated to be needed will work with rehabilitation counselors and their deaf clients as they prepare individualized written rehabilitation programs for the deaf client.

Section 103 [Scope of Vocational Rehabilitation Services]

The Act continues the authorization of interpreter services for deaf individuals as a case service which originated in the Vocational Rehabilitation Act, 1965. Listed in the section are new case services, "telecommunications, sensory, and other technological aids and devices," which have special pertinence to the vocational rehabilitation of deaf people. The barriers that telephone communication have traditionally raised in the upward mobility of deaf people in employment are effectively reduced or removed. Visual telephone devices permit deaf persons to use regular telephone services in carrying out necessary distance communication on the job. The provision of teletypewriters or other such devices as a case service to selected deaf clients of vocational rehabilitation is seen as an important development in employment upgrading for deaf people. Vocational training for deaf people utilizing telecommunications as a medium is being initiated in some areas with vocational rehabilitation supplying the instruments.

Section 112 Client Assistance

Funding is authorized for pilot projects whereby rehabilitation clients and client applicants may obtain assistance in their relationships with projects, programs and facilities providing services to them under the Act.

Client assistance projects hold promise of reducing misunderstandings by deaf people regarding vocational rehabilitation and increasing utility of the many services available to them through rehabilitation. Certified interpreters, graduate students and others well-versed in manual communication and knowledgeable about the deaf community will work with the deaf individuals referred to the projects.

Section 120 Innovation and Expansion Grants

Each State will receive an annual allotment for innovation and expansion grants which it may designate to public or nonprofit organizations or agencies to cover a portion of the cost of planning, preparing for, and initiating special programs under the State plan to initiate or expand vocational rehabilitation services to individuals with the most severe handicaps. The period of time for the special programs is limited to three years and Federal support cannot exceed 90 percent of the total cost of the project.

In the area of deafness, innovation and expansion grants will provide important opportunity for public or non-profit organizations and agencies to initiate new services for deaf people or to expand their programs to include deaf individuals among those they serve.

Section 130 Comprehensive Service Needs — Special Study

RSA has undertaken a special study mandated by the Act of the feasibility of methods designed 1) to prepare individuals with the most severe handicaps for entry into programs under the Act who would not otherwise be eligible to enter such programs due to the severity of their handicaps, and 2) to assist individuals with the most severe handicaps, who due to the severity of their handicaps or other factors such as their age, cannot reasonably be expected to be rehabilitated for employment but for whom a program of rehabilitation could improve their ability to live independently or function normally within their community.

Severely handicapped deaf people are among those who will benefit from this study which will assure their receiving the kinds of assistance necessary for them to achieve the above-named objectives. The findings of the study with recommendations for legislative or other action will be reported not later then February 1, 1975.

Title II of the Act gives identity and emphasis to the research, demonstrations and training activities which were first authorized under the VR Act in 1954.

Section 202 Research

The Secretary, through the Commissioner, and in cooperation with other programs in DHEW, is authorized to make grants and make contracts with States and public or nonprofit agencies, including institutions of higher education, to pay part of the costs of projects for the purpose of planning and conducting research, demonstrations and related activities which bear directly on the development of methods, procedures, and devices to assist in the provision of vocational and comprehensive rehabilitation services to handicapped individuals, especially those with the most severe handicaps, under this Act.

The history of research and demonstrations in the area of deafness, supported in part by vocational rehabilitation, is replete with developed methods, procedures and devices that are contributing to the vocational rehabilitation of deaf people. In the emphasis in the Act on research to aid the most severely handicapped there is assurance of continuation of efforts to discover new and better ways to resolve problems that persistently confront deaf people.

Authorization of support for Rehabilitation Research and Training Centers provides means for the Deafness Research and Training Center at New York University to carry further its expanding national program in research and training in the field of deafness.

Establishment and support of Rehabilitation Engineering Research Centers foresees the development of projects to bring to deaf people new systems and devices for better management of their rehabilitation problems.

Section 203 Training

The Secretary, through the Commissioner, and in cooperation with other programs in DHEW, is authorized to make grants to and contracts with States and public or nonprofit agencies and organizations including institutions of higher education, to pay part of the cost of projects for training, traineeships, and related activities designed to assist in increasing the numbers of personnel trained in vocational and comprehensive rehabilitation services to handicapped individuals and in performing other functions necessary to the development of such services.

Ongoing projects continue to provide training in vocational rehabilitation service to deaf people and training in manual communication to vocational rehabilitation and allied professionals serving deaf individuals.

A new short-term training project will increase the number of certified interpreters available to State vocational rehabilitation agencies to assist them in their work with deaf people.

Section 302 Vocational Training for Handicapped Individuals

The Secretary is authorized to make grants to States and public or nonprofit organizations and agencies to pay up to 90 percentum of the cost of projects for providing vocational training services to handicapped individuals, especially those with the most severe handicaps, in public or nonprofit rehabilitation facilities. Vocational training services that may be provided include training in occupational skills, related services such as work evaluation, work testing, provision of occupational tools and equipment required by the individual to engage in such training, and job tryouts. Payment of weekly allowances to individuals receiving such training and related services is authorized. No part of any grant made pursuant to Section 302 may be used to pay costs of acquiring, constructing, expanding, remodeling or altering any building.

Rehabilitation organizations and agencies presently serving deaf individuals or that are interested in expanding their programs to include vocational training services to deaf persons, will be enabled through the Act to carry out activities promoting career advancement and more and better employment for more deaf people.

Section 304 Special Projects and Demonstrations

Special projects and demonstrations are authorized for paying part of the costs of special projects and demonstrations which hold promise of expanding or otherwise improving rehabilitation services to handicapped individuals, especially those with the most severe handicaps.

The authorization holds great implications for deaf people whose maximum vocational potential has not been reached. Fiscal year 1974 appropriations for special projects and demonstrations for deaf people whose maximum vocational potential has not been reached is beginning on a limited scale work that will enable severely handicapped deaf individuals to become employable and able to live more independently in the community. The special projects and demonstrations, all of which will be regional, as they develop will serve increasing numbers of severely handicapped deaf persons for whom no facilities now exist.

Section 305 National Center for Deaf-Blind Youths and Adults

Deaf people who also are severely vision impaired or blind may be eligible for comprehensive services at one program which, under the Act, has received appropriations for ongoing services and for construction of a new center.

Section 501 Employment of Handicapped Individuals

An Interagency Committee on Handicapped Employees is established to ensure, through the establishment of affirmative action programs, the adequacy of hiring, placement, and advancement practices with respect to handicapped individuals by each department, agency, and instrumentality in the Executive Branch of Government. The Secretary, DHEW, and the Chairman of the Civil Service Commission will serve as Co-chairmen.

The establishment of the Interagency Committee on Handicapped Employees will help to open the way to new and better employment opportunities for deaf people at Federal agencies. Advancement in career status for qualified deaf individuals is an important focal point.

Section 503 Employment Under Federal Contracts

Any contract in excess of $2,500 entered into by any Federal department or agency shall contain a provision that in employing persons to carry out such contract, the contractor shall take affirmative action to employ and advance qualified handicapped individuals.

Deaf persons among other handicapped individuals with necessary work skills will benefit from the above mandate prohibiting discrimination in Federal contractual employment.

Section 504 Nondiscrimination Under Federal Grants

No otherwise qualified handicapped individual shall, solely by reason of his handicap, be excluded from or denied benefits of any program or activity receiving Federal funds.

Deaf people are assured in the mandate that their deafness and the limitations it may impose on them will not deprive them of services or benefits available through Federally funded programs.

PROGRAM LISTINGS
RESEARCH AND DEMONSTRATION PROGRAMS IN THE AREA OF DEAFNESS

For descriptions of programs active prior to 1974 see DEAFNESS, Journal of Rehabilitation of the Deaf, Monograph No. 1, March 1969, DEAFNESS ANNUAL Volume II, and DEAFNESS ANNUAL Volume III.

Grant No.: 14-P-55067/2

Project Title: Explorations in the Psychology of Deafness

Duration: 1970-1975

Sponsoring Institution: New York University, School of Education, Washington Square, New York, New York 10003

Total Amount: $147,018

Project Director: Edna S. Levine, Ph.D.

Description: To develop a program to stimulate, initiate, and carry out explorations and actions for the eventual elimination of problems that continue to obstruct the social and vocational rehabilitation of the deaf.

Grant No.: 14-P-55107/3

Project Title: National Census of the Deaf

Duration: 1969-1973 Terminates 12-31-73

Sponsoring Institution: National Association of the Deaf, 814 Thayer Avenue, Silver Spring, Maryland 20910

Total Amount: $844,838

Project Director: Jerome D. Schein, Ph.D.

Description: To conduct a national census of the deaf; to obtain accurate estimates of the size of the deaf population of the United States, its geographical distribution, and its demographic and related characteristics. (See also Grant RD-2755.)

Grant No.: 14-P-55196/5

Project Title: Improved Vocational, Technical, and Academic Opportunities for Deaf People: Demonstrations Component

Duration: 1969-1974
Terminates 5-31-74

Sponsoring Institution: St. Paul Area Technical Vocational Institute, 235 Marshall Avenue, St. Paul, Minnesota 55102

Total Amount: $742,500

Project Director: Robert R. Lauritsen

Description: A project jointly funded by SRS/RD and USOE/BEH to demonstrate the feasibility of using existing vocational and technical schools and community colleges to serve deaf students. (See also Grant 14-P-55305/0.)

Grant No.: 14-P-55305/0

Project Title: Improved Vocational, Technical and Academic Opportunities for Deaf People: Demonstration Component

Duration: 1969-1974
Terminates 5-31-74

Sponsoring Institution: Seattle Community College, 1718 Broadway, Seattle, Washington 98122

Total Amount: $742,500

Project Director: Stanley Traxler

Description: A project jointly funded by SRS/RD and USOE/BEH to demonstrate the feasibility of using existing vocational and technical schools and community colleges to serve deaf students. (See also Grant 14-P-55196/5.)

Grant No.: 14-P-55499/5

Project Title: Law for the Deaf

Duration: 1972-1974
Terminates 6-30-74

Sponsoring Institution: Wayne State University Law School, 468 West Ferry Street, Detroit, Michigan 48202

Total Amount: $20,000

Project Director: Professor Patricia N. Blair

Description: To study the feasibility of deaf persons to qualify and be enrolled by law school. To prepare deaf persons for law careers.

Grant No.:
14-P-55410/3

Project Title: Research on a Wearable Visual Aid to Speech Communication for Hearing Impaired Persons

Duration:
1973-74
Terminates 5-30-74

Sponsoring Institution: Gallaudet College, Kendall Green, Washington, D.C. 20002

Total Amount:
$52,811

Project Director: James M. Pickett, Ph.D.

Description: Research on a wearable visual aid to speech communication for hearing impaired persons.

Contract No.:
SRS-74-9

Project Title: Preparation of manuscript for DEAFNESS ANNUAL IV and DEAFNESS ANNUAL DIRECTORY 1974-75.

Duration:
1973-74
Terminates 9-31-74

Sponsoring Institution: Professional Rehabilitation Workers with the Adult Deaf, 814 Thayer Avenue, Silver Spring, Maryland 20910

Total Amount:
$33,996

Project Director: Arthur G. Norris

Description: Preparation of a manuscript for DEAFNESS ANNUAL IV and DEAFNESS ANNUAL DIRECTORY 1974-75.

REHABILITATION SERVICES ADMINISTRATION

Long-Term Training Grants in Rehabilitation of the Deaf
Fiscal Year 1973

			FY 1973 (Academic Year 1972-1973)		
	Grant No.	**No. of Tr's**	**Teaching Grants**	**Trainee-ships**	**Total Amt of Grants**
GRAND TOTAL		**201**	**$346,493**	**$320,036**	**$666,529**
Short-Term Total:		120	25,052	27,196	52,248
Long-Term Total:		81	321,441	292,840	614,281
Region II					
New York University (N.Y.)	10078/2-08	11	—	$ 60,442	$ 60,442
Region III					
National Association of Hearing and Speech Agencies (Md.)	81008/3-02	—	$ 46,319	$ 30,120	$ 76,439
National Association of the Deaf (Md.)	81003/3-02	—	$ 90,375	—	$ 90,375
Pittsburgh, University of (Pa.)	15074/3-08	4	$ 15,138	$ 26,105	$ 41,243

Region IV					
Tennessee, University of (Tenn.)	20111/4-13	25	$ 29,793	$ 38,325	$ 68,118
Region IX					
Arizona, University of (Ariz.)	45048/9-06	9	$ 22,124	$ 31,062	$ 53,186
San Fernando Valley State College (Calif.)	81007/9-02	16	$ 70,530	$ 80,468	$150,998
Region X					
Oregon College of Education (Oreg.)	50015/0-09	16	$ 47,162	$ 26,318	$ 73,480

DETAILS OF LONG-TERM TRAINING GRANTS

Grant No.:
336 (orig. #)
81007/9-02

Project Title: National Leadership Training Program — Area of the Deaf

Duration:
9/1/62-9/1/74

Sponsoring Institution: California State University, Northridge, California 91324

Total Amount:
$1,658,055

Project Director: Ray L. Jones, Ed.D.

Description: This two-semester graduate program is designed to provide special school and public administration training for persons experienced in working with deaf people. A major emphasis is given to programs of administrative internship and experimentation, and to the development of new programs for the deaf. Trainees who meet the college entrance requirements can earn the Master of Arts degree with a specialization in School Administration.

Short-term training programs conducted under the Grant:

1. The Adult Deaf
2. Conference—Interpreters and Instructors of Adult Education for the Deaf
3. Evaluation of the Adult Deaf
4. Leadership Opportunities for the Adult Deaf
5. Conference—Increased Educational Opportunities for the Adult Deaf
6. Conference—Leadership Needs in the Deaf Community
7. Deaf Community Class; Sensitivity Training
8. Manual Communication Class
9. Leadership Conference for Officers of the California Association for the Deaf
10. Sensitivity Training Class
11. Conference for Interpreters
12. Conference of Teachers and Interpreters in Adult Education Classes for the Deaf
13. Training Conference for Region IX Rehabilitation Counselors for the Deaf
14. Interpreters Conference
15. Interpreters Class
16. Training Conference for Region IX Rehabilitation Counselors for the Deaf
17. Interpreting in the Legal Setting
18. Class—Interpreting in the Rehabilitation Setting
19. "Total Immersion" — Introduction to Sign Language
20. Training Conference for Region IX Rehabilitation Counselors for the Deaf
21. Planning Workshop for National Parent Education
22. National Workshop — "Operation TRIPOD"
23. Parents Workshop — Planning Grant

Grant No.:
[illegible] (orig.#)
[illegible]5/0-09

Project Title: Counseling the Deaf

Duration:
3/1/63-8/31/74

Sponsoring Institution: Oregon College of Education, Monmouth, Oregon 97361

Total Amount:
$526,707

Project Director: Richard E. Walker, Ed.D.

Description: A training program for counselors working with the deaf designed to meet the particular need of vocational counselors and other professional personnel who work with profoundly deaf adults. Nine quarter hours of academic credit given.

Grant No.:
410 (orig.#)
44-P-81008/3-02

Project Title: Workshops on Hearing Loss

Duration:
1963-1974

Sponsoring Institution: National Association of Hearing and Speech Agencies, 814 Thayer Avenue, Silver Spring, Md. 20910

Total Amount:
$873,794

Project Director: Edgar B. Porter

Description: To update knowledge and skills of personnel engaged in community hearing and speech agencies in the areas of planning, development and administration; to decrease the time lag between the acquisition of new knowledge and techniques in the areas of hearing and speech and their effective application in every day practice; to enable the professional staff of community speech and hearing centers, of other NAHSA member agencies and affiliates and representatives of related community agencies to engage in short-term workshops designed to improve community services and programming.

Grant No.:
412 (orig.#)
20111/4-13

Project Title: Rehabilitation Counselor Training— Three-Month Orientation to Deafness

Duration:
1963-1974

Sponsoring Institution: Department of Special Education and Rehabilitation, The University of Tennessee, Knoxville, Tennessee 37916

Total Amount:
$778,123

Project Directors: William E. Woodrick, M.A., Glenn T. Lloyd, Ed.D. (1964-1966), and Norman Tully, M.A. (1963)

Description: To provide orientation to the handicap often posed by hearing impairment and rehabilitative techniques. The program is aimed at providing information on deafness to assist professional persons adapt their competencies in service to deaf persons. Fifteen quarter hours of academic credit at either the Graduate or Adult Special level is available with courses including: Basic Audiology, Introduction to Education of the Deaf, Vocational Guidance of Deaf Persons, Communication Skills, and practicum experience with young deaf adults.

Grant No.:
44-P-45048/9-06

Project Title: Rehabilitation Counseling With the Deaf Training Program

Duration:
1971-1974

Sponsoring Institution: University of Arizona, Tucson, Ariz. 85721

Total Amount:
$480,895

Project Director: Larry G. Stewart, Ed.D.

Description: A graduate-level training program in rehabilitation counseling for individuals who wish to serve deaf persons. The program provides knowledge and expertise in counseling deaf persons, based upon training in the areas of personality, vocational psychology, individual appraisal, medical and psychological aspects of disability, counseling theory and principles of rehabilitation. Opportunities for application of classroom learning is afforded through practicum and internship experiences in a variety of settings. Graduates are prepared to function in such settings as schools for the deaf, vocational rehabilitation agencies, colleges, and mental health agencies. Individuals desiring to acquire expertise in serving deaf individuals with special problems may take certain coursework offered through the Department's programs in Drug Abuse, Alcoholism, or Vocational Evaluation

Grant No.:
664 (orig.#)
15044/3-07

Project Title: Recruitment: Audiology, Speech Pathology, and Deaf Education

Duration:
1967-1974

Sponsoring Institution: National Association of Hearing and Speech Agencies, 814 Thayer Avenue, Silver Spring, Md. 20910

Total Amount:
$323,935

Project Director: Robin K. Rosthal

Description: Designed to increase the supply of audiologists, speech pathologists, teachers of the deaf, rehabilitation specialists, social workers, and related professionals and supportive personnel serving people with communicative handicaps; to draw into these fields traditionally under-represented groups (minorities, males, the handicapped, people willing to serve rural or inner city areas); and to increase public awareness of communications disorders and how they can be treated.

Grant No.:
698 (orig.#)
15045/3-04
81003/3-02

Project Title: NAD Communicative Skills Program

Duration:
1967-1977

Sponsoring Institution: National Association of the Deaf, 814 Thayer Avenue, Silver Spring, Maryland 20910

Total Amount:
$587,641

Project Director: Terrence J. O'Rourke

Description: This long-term teaching program envisages a nationally administered pilot project to develop effective curricula, sound pedagogic guidelines, avenues of recruitment and dissemination of information, and provisions for administrative controls in the direction, development, and evaluation of a high-quality program in teaching manual communication to rehabilitation counselors, and such related personnel as psychologists, social workers, vocational instructors, psychiatrists, and others whose field of endeavor involves contact with deaf people. This would necessarily include audiologists, speech pathologists, speech therapists, teachers, firemen, policemen, hospital employees, employers, co-workers, and family members, friends and relatives of deaf people. Any increase in the type and nature of rehabilitation services available to the deaf client, and effective utilization of existing services, is directly related to the number of trained personnel who are able to use manual communication, either separately, or as an adjunct to speech and speechreading.

Selected Publications: O'Rourke, Terrence J., Ed. *A Basic Course in Manual Communication*, Silver Spring, Maryland: National Association of the Deaf, 1970.

O'Rourke, Terrence J., Ed. *Psycholinguistics and Total Communication: The State of the Art*. Washington, D.C.: American Annals of the Deaf, 1972.

REHABILITATION SERVICES ADMINISTRATION

Short-Term Training Grants in Rehabilitation of the Deaf
Fiscal Year 1973

			FY 1973 (Academic Year 1972-1973)		
Institutions	**Grant No.**	**No. of Tr's**	**Teaching Grants**	**Trainee-ships**	**Total Amt of Grants**
SHORT TERM					
Region I					
Boston College (Mass.)	05206/1-01	—	$3,519	$ 2,106	$ 5,625
Region II					
New York University (N.Y.)	10333/2-01	50	4,887	5,113	10,000
Region VI					
Arkansas Rehabilitation Research Training Center (Ark.)	30293/6-01	70	5,751	12,827	18,578
Arkansas Rehabilitation Services (Ark.)	81010/6-01	—	5,395	7,150	12,545
Region IX					
California State University at Northridge (Calif.)	45337/9-01	—	5,500	—	5,500

SHORT-TERM TRAINING DETAILS

Short-term activities were supported by the Rehabilitation Services Administration Central Office and Regional Offices in Fiscal Year 1973. In Fiscal Year 1973 the Central Office supported one short-term project in Rehabilitation of the Deaf, Grant No. 81010/6-01.

Grant No.: 81010/6-01
Project Title: Study in Rehabilitation of the Deaf

Duration: 9/1/72-8/31/73
Sponsoring Institution: Arkansas Rehabilitation Services, Little Rock, Arkansas 72203

Total Amount: $12,545
Project Director: Vernon L. Glenn, Ed.D.

Objective: To develop a training guide for rehabilitation workers providing rehabilitation services for the deaf.

Regional Offices short-term training activities are:

Grant No.: 05206/1-01
Project Title: Vocational Rehabilitation and the Deaf

Duration: 3/1/73-8/31/73
Sponsoring Institution: Boston College, Division of Special Education and Rehabilitation, Chestnut Hill, Mass. 02167

Total Amount: $5,625
Project Director: John R. Eichorn, Ed.D.

Objective: Not available in Central Office.

Grant No.: 30293/6-01
Project Title: Rehabilitation of the Deaf: Counseling, Planning and Evaluation

Duration: 1/1/73-2/28/74
Sponsoring Institution: Arkansas Rehabilitation Research and Training Center, Little Rock, Arkansas 72201

Total Amount: $18,578
Project Director: Vernon Glenn, Ed.D.

Objectives: To prepare rehabilitation personnel to work more effectively with clients presenting psychosocial problems; to facilitate Program Planning and Evaluation sections movement into more meaningful and impactful areas of endeavor.

Grant No.: 45337/9-01	**Project Title:** Seminar on State of the Arts Regarding Services to Minority Deaf
Duration: 6/30/73-6/30/74	**Sponsoring Institution:** California State University, Northridge, California 91324
Total Amount: $5,500	**Project Director:** Ray L. Jones, Ed.D.

Objective: To bring together individuals with theoretical and practical expertise in the field of rehabilitation with minority deaf clients in order to produce a body of information for Rehabilitation Counselors as an aid in dealing with such clients.

CENTERS ON DEAFNESS

Within recent years a number of *Centers on Deafness*, structured as distinct organizational entities, functioning under university and college auspices, have been established to facilitate programs undertaken in behalf of deaf people. Also, to increase effectiveness of diverse programs related to the field of deafness, the Center provides a vehicle whereby such programs can be conjoined for mutual benefit.

While each of the centers is unique in its design, depth, core objectives, outreach and funding, all prescribe to the goal of providing service when and where it is needed. In the single area of information dissemination alone, the centers are reaching thousands of individuals and agencies involved in program work with deaf people. Increasingly the centers are serving as consultants and actively assist in the development and expansion of State and community programs. Their availability to serve in these capacities in addition to maintaining their core programs is a stimulus that is helping many developing programs to achieve new and earlier levels of success.

DEAFNESS RESEARCH & TRAINING CENTER

New York University School of Education

Jerome D. Schein, Ph.D., Director

The Deafness Research & Training Center was established in March, 1966, by the Board of Trustees of New York University. Initial support for its operation came from the Social and Rehabilitation Service and the University. The overall objective of the Center has been expressed as: "to assist the deaf individual . . . to attain maximal skill in adapting himself to his environment and its changing characteristics, to find satisfaction in work and leisure activity, and to lead the fullest, most adequate life of which he is capable."*

Past Achievements

Aging. Spurred by the White House Conference on Aging (WHCoA), the Deafness Center enunciated the first comprehensive program for the older deaf person. It was published in 1971 under the title SERVICES FOR ELDERLY DEAF PERSONS. The recommendations in it were completely reprinted in the WHCoA's report to the President, thus giving them official status.

Census. The National Census of the Deaf Population has been a cooperative project between the National Association of the Deaf and the Deafness Center under a grant from SRS. The survey determined the prevocationally deaf population to be over 400,000 — which yields a prevalence rate twice as high as previously cited. This finding alone has far-ranging implications for planning services for deaf people. Data on education, occupation, income, and many other areas of interest have been reported. Together these data are the first comprehensive body of facts about deafness on a national basis in over 40 years.

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*Quotation is from the original grant proposal — 1966.

Counseling. Materials for the development of counselors to work with deaf clients have been scarce. Project R-13 produced COUNSELING WITH DEAF CLIENTS, an accepted, first textbook on this subject. An accompanying text, THE USE OF GROUP TECHNIQUES WITH DEAF PERSONS was also produced.

Continuing Education. The recommendations contained in CONTINUING EDUCATION FOR DEAF ADULTS, are not known to be duplicated elsewhere. This publication aided Gallaudet College in obtaining a direct Congressional appropriation for their nationwide continuing education program. Other groups have also found this document useful in local and statewide planning.

Employment. A study of barriers to employment of deaf persons in Federal Civil Service has led to a more extensive study involving (a) a demonstration of techniques to improve hiring and promotion of deaf workers and (b) an inservice training program for supervisors.

Interpreting. Critical to delivering services to deaf persons is the availability of manual interpreters. The Deafness Center has prepared and published the first formal curriculum for training interpreters (INTERPRETER TRAINING: A CURRICULUM GUIDE), and it has been used successfully in the program undertaken during the year. Research to identify characteristics of good interpreters has yielded a regression formula accounting for about 86 percent of the variance in the original sample. A "total immersion" program has been tested with 12 unemployed, naive (to manual communication) trainees, of whom 8 are now employed, full or part-time, as interpreters.

Model State Plan for Vocational Rehabilitation of Deaf Clients. In cooperation with representatives of the Office of Deafness and Communicative Disorders (RSA), state vocational rehabilitation agencies and regional offices of Social and Rehabilitation Service, the Deafness Center prepared a model state plan for the vocational rehabilitation of deaf clients. The plan has now been endorsed by: the Rehabilitation Services Administration, the Council of State Administrators of Vocational Rehabilitation, the National Association of the Deaf, the Professional Rehabilitation Workers with the Adult Deaf, and the National Rehabilitation Association. The plan was the basis for the Congress on Deafness Rehabilitation in Tucson, Arizona, in February 1974. The degree of unanimity achieved in support of the plan is a high-water mark in cooperation among those concerned with the rehabilitation of deaf persons.

Orientation. To increase the effectiveness of counselors having minimal contact with deaf clients, an intensive orientation program has been developed and administered to several hundred counselors from New York, New Jersey, Puerto Rico, and the Virgin Islands. A measure of the program's success is the fact that each State has requested it be repeated — at their expense. Outside of Region II, the program will offer orientation to VR counselors in Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont (sponsored by a grant from Region I) and Virginia (supported by Virginia DVR).

Social Perception. Several studies have been concerned with deaf persons' social perceptions — how social information is received and interpreted. In addition to several articles reporting the individual projects, a lengthy interpretation of their findings has been written. The studies found deaf persons' social perceptions to be inaccurate and negative.

Priorities. The Deafness Center conducted a conference which produced a definitive statement on the present needs of deaf persons: CURRENT PRIORITIES IN THE REHABILITATION OF DEAF PEOPLE. As an outgrowth of that document, the Deafness Center has prepared a model statewide plan for deafness rehabilitation in cooperation with the Office of Deafness and Communication Disorders, RSA (see above).

Taction. Deafness Center studies of deaf children and youths' tactual sensitivity have been brought together in a published monograph, DEAF AND HEARING CHILDREN'S PERFORMANCE ON A TACTUAL PERCEPTION BATTERY. Deaf youth displayed greater sensitivity than their hearing peers on vibrotactile and two-point measures. The deaf subjects did significantly less well on tests demanding speed. These findings have implications for vocational counseling.

Television. The Deafness Center's first ventures into television for deaf viewers (R-17 and 22) have yielded: (a) information about deaf viewers' preferences and viewing habits, (b) the first captioned broadcast of a Presidential Inaugural Address, (c) establishment of four CATV production cooperatives, (d) extensive use of interpretation on local and network broadcasts.

Visual Communication. Studies of information processing through vision unsupported by audition indicate important, unexpected principles for improving visual displays used by deaf viewers. Research during the past year establishes critical differences between visual and auditory short-term memory. Translating these findings into practical applications means that (a) fingerspelling practices must be altered to increase understanding, (b) sign language interpreting will require modifications, (c) captioning and interpretation on television will need to be developed differently from the present haphazard use without assessment of legibility.

RESEARCH ACTIVITIES

The Deafness Research & Training Center directs its full resources to improving the delivery of services to deaf people. To pursue this broad objective a multifaceted, interdisciplinary strategy is employed. All Deafness Center activities interdigitate into a coordinated effort combining the broad talents of the staff, and incorporating the knowledge and expertise of many other cooperating facilities.

To assure relevance to the deaf community of the areas selected for research, an Advisory Board composed of thirteen professionals in the field of deafness is relied upon. Extensive contacts with a wide variety of social service agencies provide many ideas for research. Also, direct contacts with deaf clients contribute importantly to evaluation of current needs. The inservice training programs contribute feedback by highlighting those aspects of service delivery which personnel in the field find most troublesome and, therefore, important to research.

Major Research Targets

The many phases of service delivery and the varieties of client-agency interactions offer numerous researchable problems. The decision to attack any one among all those presenting themselves involves considerations of imminent need, available resources, and probable outcome.

Developing Models for Service Delivery. Serving the deaf population presents some unique problems and some unusual configurations of familiar difficulties. Three projects have been specifically addressed to the design of systems which can be useful to agencies in different communities. Project R-20 is aimed at the typical facility which handles a mixed, but predominantly majority-group, caseload. The problems of ethnic-minority deaf persons are the focus of Project R-23. The most ambitious undertaking from the standpoint of its scope has been R-27, the Model Statewide Plan which is now completed.

Increasing and Strengthening Community Resources. A major component in any service-delivery system for deaf clients consists of the skilled personnel who form the link between client and agency. Unhappily, specialists in assisting deaf persons remain in short supply.

Interpreters are relatively scarce, and those who are available are largely self-taught. Project R-11 resulted in a successful method for short-term training to develop interpreters from persons without prior knowledge of sign language. Factors predictive of interpreter success have also been studied (R-11). The Deafness Center now plans to lead a consortium of six institutions in a major attempt to make a substantial addition to the body of qualified interpreters and bring an end to this long-standing critical shortage.

Responding to the need for more and better-trained counselors to work with deaf clients, the Deafness Center has a continuing program to evaluate its training, has prepared training materials, and has planned and tested a curriculum for the orientation to deafness of counselors who will see only a few deaf clients.

Employment Opportunities. The culmination of vocational rehabilitation is a successful job. The changing industrial employment pattern makes it mandatory that new opportunities be opened for deaf workers. Project R-24 and its follow-up, R-26, deal with barriers to the full employment of deaf persons in federal civil service. A major effort, approved last year but postponed for lack of funds until this coming year, is R-30. Focusing on the less-educated deaf population, this project will seek to create job opportunities in positions not previously held by deaf persons or held by very few.

Visual Communication Laboratory and Telecommunications. Deaf people are visually dependent. All communication must be aimed at the deaf person's eyes. Despite the obvious implications of this fact, little research has been done to assist deaf persons to see better, hence to process information more readily. The Visual Communication Laboratory has concerned itself with the receiver of visual data (R-5) and with the data sources (R-28). In respect to the latter, the interests of the Telecommunications Unit and of the Visual Communication Laboratory have merged. Television, particularly among the telecommunication media, has the promise of becoming a vehicle of benefit to deaf viewers. The research now beginning will contribute to the neglected study of captioning TV broadcasts. The rehabilitation potential for these studies is great. From their training through their employment, the deaf workers rely exclusively on their eyes. Attempts to make visual communication more efficient hold high priority.

Deaf Community Development. Deaf consumers lack strong organization. They are poorly prepared for participation in the social and rehabilitation programs established for them. They presently do not have much input into legislation affecting their lives. Earlier efforts at improving these conditions have been only moderately successful. A more vigorous and better-targeted approach has had far greater results (R-25).

More research will be required, however, to find ways of bringing deaf consumers into a more active, more constructive role in the planning for, and delivery of, services to the deaf community.

Research Summary: 1973-1974

Totals: New 5 Continuing 7 Completed 4 Proposed 1

Category	**Proj. No.**	**Project Title**	**Status**	**Primary Target Group**
Improving Delivery of Services: Casefinding	R-8	National Census of the Deaf Population	Cont.	Deaf
	R-20	A Model Casefinding, Counseling and Referral Program for Deaf People	Cont.	Deaf
	R-23	Service Delivery Model for Deaf Inner-City Residents	Cont.	Deaf
Improving Delivery of Services: Special Problems	R-26	Overcoming Barriers to the Full Employment of Deaf Persons in Federal Government	Cont.	Deaf
	R-32	Survey of Pre-Vocational Needs of Deaf-Blind Youth	New	Deaf-Blind
Improving Delivery of Services: Consumer Development	R-5	Development of Standards and Principles for Visual Displays for Deaf Persons: The Visual Communication Laboratory	Cont.	Deaf
	R-22	Demonstration of a Cable Television Cooperative	Cont.	Deaf
	R-25	Deaf Community Development	Comp.	Deaf

	R-28	The Development and Application of New Testing Procedures for the Study of Captions and Sign Language on Television	New	Deaf
	R-30	Career Development for Non-College Bound Deaf Students	New	Deaf
	R-31	Comparative Study of User Reactions to the TV Phone and TTY	Comp.	Deaf
	R-34	Supplemental Security Insurance and the Deaf Community	New	Deaf
Improving Delivery of Services: Personnel Development	R-10	Continuing Assessment of Programs for Preparation of Professionals to Work with Deaf People	Cont.	Center Staff
	R-27	Development of a Model Statewide Plan for the Rehabilitation of Deaf People	Comp.	Rehabilitation Agencies
	R-29	Development of Videotapes for Application in Training Rehabilitation Counselors to Work with Deaf Clients	New	Counselors
	R-33	Survey of Rehabilitation Counselors with Deaf Clients	Comp.	Rehabilitation Agencies
		National Interpreter Training Consortium: Pilot Phase	Prop.	Interpreters

Significant Research and Outcomes

Model for a State Plan for Vocational Rehabilitation of Deaf Clients. For more than a decade, attempts have been made to develop model plans for the vocational rehabilitation of deaf clients. Dr. Richard P. Melia prepared a careful review of meetings held for that purpose in a paper which became the basis for a conference at the Deafness Center in May, 1973.

The New York University conference brought together a distinguished group of VR experts, led by the Director of the Office of Deafness and Communicative Disorders, Dr. Boyce R. Williams. Ms. Edna Adler and Dr. Melia later participated as representatives of the federal office in drafting the model. Participants from the regional offices were Messrs. Gerald Mann, Dale Romesburg, Anthony Ruscio and Henry Warner; from the state offices Messrs. Francis J. Gattas, James Hanson, F. Terry Kemp and Ronald Reese. The National Rehabilitation Association and Council of State Administrators of Vocational Rehabilitation established a Joint Task Force on Deafness which was represented by Drs. Charles R. Ferrel and, in reviewing the drafts, Jack Hutchison. The three staff members from the Deafness Center were Mr. Frank G. Bowe and Drs. Douglas Watson and Jerome Schein.

The model was presented in nine sections:

I. Philosophy
II. Population
III. The Vocational Rehabilitation Process
IV. Manpower
V. State Advisory Council on Deafness
VI. Interagency Cooperation
VII. Special Facilities
VIII. Deaf Community Development
IX. Communications: National-State-Local

In order to achieve consensus, six drafts were successively prepared and circulated among the experts. The final document was published by the Professional Rehabilitation Workers with the Adult Deaf (Model for a state plan for vocational rehabilitation of deaf clients. *Journal of Rehabilitation of the Deaf,* Monograph No. 3, November, 1973.) Endorsements of the plan have been received from the following organizations:

Council of State Administrators of Vocational Rehabilitation
National Association of the Deaf
National Rehabilitation Association
Professional Rehabilitation Workers with the Adult Deaf
Rehabilitation Services Administration

The model formed the basis of the first Congress on Deafness Rehabilitation, held in Tucson, Arizona, February, 1974. It was unanimously adopted by the delegates.

As a working tool, the model can greatly improve the delivery of services to deaf clients. A minimum level of uniform services across states may be achieved with this plan. The deaf community can then move forward state by state to establish and to upgrade services, assured that an effective, though basic, plan has been implemented.

National Census of the Deaf Population (*NCDP*). Rehabilitation planning begins with an estimate of the population to be served. As this project has demonstrated, previous estimates of deafness in the United States have drastically underestimated its prevalence. The definition of a "deaf mute" used by the U.S. Bureau of the Census covered those persons whose hearing loss occurred before 8 years of age. Using that definition, the last count of deaf persons with early onset was 46.5 per 100,000. The NCDP presently shows a rate of 160 per 100,000 for that age at onset — more than 3 times higher! Overall, NCDP found 13.6 million Americans had a hearing loss, of whom 1.7 million are deaf and 410,000 prevocationally deaf (i.e., lost their hearing before 19 years of age).

The surprisingly larger rates for deafness mean that all planning based on earlier prevalence rates is inadequate. This critical fact cannot be overemphasized. However, the NCDP produced more than estimates of the size of the deaf population. It contains a description of many areas of daily living. A few highlights:

- Deaf adults average one grade below that completed by the general population.
- Nonwhite deaf males and all deaf females have higher unemployment rates than comparable groups in the general population.
- Both deaf men and women, white and nonwhite, exhibit some evidence of underemployment. However the nonwhite deaf adults are worse off than white deaf adults.
- Personal incomes of deaf adults fall from 24 to 38 percent below medians for comparable general population groups
- Age at onset of deafness is related to income: the younger the age at onset, the lower the annual income.
- On almost every measure in the NCDP, nonwhite deaf persons have less favorable averages than whites. Incomes are lower. Unemployment is higher. Housing is poorer. Occupational level is lower. Proportion having additional disabilities is greater.
- The characteristics of the deaf population vary considerably by region of the United States. There exists, therefore, a need for local data to increase the effectiveness of planning for service delivery in the various states and regions.

Service Delivery Models. The two projects which focus on testing models for delivering services to deaf clients have experienced unusual success in their second years. Programs to implement each in a variety of settings have been, or are about to be, initiated in Connecticut, New York and North Carolina. The Connecticut program will function statewide. In New York City, the Martin Luther King Health Center has undertaken a sizable cooperative program in a densely populated, low-income, urbanized area. The Winston-Salem Goodwill provides a third test of the model, this time in a medium-sized city. By the end of the third year, the models will be tried in sufficiently different circumstances to give a good indication of their generalizability.

Among the findings to date:

1. Most deaf clients present job placement as their principal need. But a large share of them have little or no marketable skills.

2. Nearly half of the nonwhite deaf clients had personal incomes for 1973 below $5,000. By comparison, only one fourth of white deaf clients had personal incomes below $5,000.

3. Unemployment among nonwhite deaf males occurred at a rate of 5 times higher than that for white deaf males.

4. Inner-city deaf residents proved exceptionally difficult to organize because of a lack of community leaders.

5. A little more than half of the 439 social service agencies which were questioned reported they would be willing to serve deaf clients.

5. Agencies which had seen a large number of deaf clients (50 or more per year) had in the majority (68 percent) made provisions for manual communication.

These selected points illustrate the weighty corpus of research data used in developing the complementary models for service delivery — one for the general deaf population and the other more specifically for ethnic minority deaf persons. Both approaches concentrate on mobilizing existing resources to more effectively provide for the needs of deaf clients.

Television. The Cable Television Production Cooperative for Deaf Viewers (CTPCDV) has begun to function. Ongoing workshops managed by deaf people are functioning in Pennsylvania, where cable television is well-established. The concept, though growing slowly, seems promising. Unfortunately, the intra-industry disputes cloud all activities associated with cable television. Nonetheless, the concept has been implemented and should prove influential beyond its immediate application to cable television.

There are no standards which specify the best means of displaying fingerspelling, sign language, or printed words on television. Any visual rendering of the accompanying auditory commentary makes television programs and films produced for hearing audiences more accessible to deaf viewers; however, fingerspelling and sign language on television remain difficult for the deaf person to understand without considerable effort. The effectiveness of captioning as it is now done is also erratic since the use of this technique, too, suffers from a lack of standards for good visual presentation. The Visual Communication Laboratory has undertaken a systematic examination of each of the means of visually supplementing television and films, with the aims of determining the advantages and disadvantages of each method and establishing the best way in which each technique can be used. Obviously, the findings will also be applicable to all aspects of manual communication.

The immediate goal of the present research was to discover the effects of displaying fingerspelling on television. For these studies, stimuli were strings of 3 or 6 randomly selected letters delivered at an average rate of approximately 300msec/letter. These were fingerspelled at an angle of 45° to the camera, except for a study in which angle of regard was an independent variable.

The viewer's ability to report the elements of strings of 3 as opposed to 6 letters was first compared. In the longer strings, percent correct responses declined as a function of the letter's serial position. There was no consistent decline with serial position in the shorter strings; i.e., the second and third letters tended to be reported with the same accuracy as first letters in 3-letter strings. The differential effect of serial position according to length of strings recurred when angle of regard was varied. On the other hand, four angles of regard (full face, 30°, 60° and 90°) seemed to permit about equivalent mean accuracy of report.

The results of these studies have an immediate relevance as to how fingerspelling should be used in television. It now seems that angle of regard is not a critical factor in displaying fingerspelling, but for fingerspelled captions to be intelligible, they must be delivered at a much slower rate than the spoken track. Therefore, fingerspelled captions should be produced at a slow rate and reserved for those words whose relationship to a written counterpart is critical, such as proper names and technical terms. It is unlikely, however, that a viewer unfamiliar with the fingerspelled term will be able to recognize the word unless it is presented and explained before it is used within a longer series of signs. It must be emphasized that the failure to recognize fingerspelled words is most likely the result of how the visual system processes dynamic visual information rather than from a lack of temporal acuity.

LONG-TERM AND SHORT-TERM TRAINING

The Deafness Center administers both long-term (degree-bound) and short-term training programs. The long-term programs aim to develop personnel fully qualified in their helping specialty and also conversant with and skillful in remediating the problems of deafness. Short-term programs are designed to meet the immediate needs for additional training of personnel in the field and to encourage greater participation in the deaf community by these and other individuals and groups, either through research or service.

Activities in the vocational rehabilitation of deaf people have increased significantly during the past decade. With the growth of these programs has come a critical need for rehabilitation personnel capable of working effectively with deaf clients.

Long-Term Training

The Deafness Center's training model adopts the premise that deaf persons are entitled to the services of fully qualified personnel. In the not too distant past, services for deaf people were largely managed by well-meaning persons without professional training in rehabilitation. Even today most interpreters for deaf people have no formal preparation for their demanding work. The Deafness Center's training model has as its core a group of courses designed to give proficiency to practitioners working with deaf clients. The extensive professional preparation is the responsibility of the appropriate New York University department. Students in the combined professional programs receive the same training as others in their programs plus the deafness core. Thus, the professional graduating from the combined program has the same extensive preparations as others in his field, along with special training for work with deaf people.

The Deafness Center strives to reverse a tendency of the past to accept enthusiasm in place of competence from those who would serve the deaf community. All Deafness Center graduates must first be fully qualified in their discipline –– as rehabilitation counselors, clinical psychologists, social workers, researchers, etc. — and secondly be well-informed about deafness and skillful in working with deaf persons. This philosophy applies equally well to the preparation of paraprofessional and professional practioners. They must know their specialty as well as knowing about deafness.

The Deafness Center itself awards no degree; that is the function of each academic department. In its long-term training efforts, the Deafness Center:

- identifies disciplines now in need of professionals to work with deaf persons,
- recruits students to enter degree programs in preparation for these professions,
- administers the training grants awarded to these students,
- develops and staffs courses on deafness to supplement the disciplinary studies,
- arranges, and in many cases supervises, the practicums,
- maintains extracurricular opportunities for students in the related degree programs to improve their knowledge of and skills in working with deaf persons.

Short-Term Training

The Deafness Center offers staff development activities primarily for three kinds of groups: (a) persons already working in rehabilitation services for deaf people, (b) personnel from general community facilities, and (c) deaf consumers.

1. In-service training for both professional and paraprofessional persons now serving deaf clients. The objective is to make their rehabilitation services more efficient and successful. Special workshops and short courses have been presented to many types of groups, including rehabilitation counselors, denominational workers, and psychologists. Major foci in short-term activities were in the subject areas of:

- Communication with deaf people, including instruction in manual communication and interpreting.
- Problems in helping multiply handicapped deaf people to become independent.
- Special rehabilitation needs and problems of deaf people, particularly those training seminars which focus on the Spanish-American deaf population.

2. Orientation to deafness for rehabilitation counselors and for representatives of general community agencies having only occasional contacts with deaf people. The objective here is to enable these workers and their facilities to give increased and more adequate service to deaf clients. Closely related to this activity is the recruiting and training of interpreters crucially needed to make it possible for these agencies serving the general population to provide similar needed rehabilitation services for deaf people.

A number of seminars have been conducted to acquaint professional and consumer groups with the Deafness Center. These meetings provide an excellent opportunity to disseminate information about deafness, as well as about the Deafness Center.

3. Training activities for deaf consumers. The objective is to help deaf people become more independent and effective in arranging for needed services. The Advisory Board has assigned high priority to administrative training for deaf leaders. Accordingly, the Deafness Center provided workshops on Community Development for Deaf Persons, an Administrative Training Workshop for New York City Civic Association for the Deaf, and a Training Program for Deaf Employees at First National City Bank.

SERVICES FOR DEAF CLIENTS

Service invariably begins with a demand. Because of the Deafness Center's research and training capabilities and resources, the service programs' personnel are generally able either to meet the clients' needs or to refer them to an appropriate metropolitan service agency for assistance. Where services are nonexistent or grossly inadequate, the Deafness Center may initiate efforts to fill the gaps.

During the past year, the problem of foster care for deaf children has been pursued with local agencies. The Deafness Center has worked to improve the situation for deaf persons accused of crimes and those convicted as public offenders. Another special target group is low-verbal deaf adults. Their need for comprehensive rehabilitation gained recognition in the Rehabilitation Act of 1973. During the reporting period, the Deafness Center has worked with the Winston-Salem (North Carolina)

Goodwill Agency in an ultimately successful campaign to retain its facility for serving low-verbal deaf adults.

The service programs also directed attention to the problems created for deaf persons by the new Supplemental Security Income (SSI) program. Almost from the beginning of the program, the Deafness Center encountered deaf persons who were having difficulties. At the urging of its Advisory Board, the Deafness Center undertook a three-pronged approach to resolving these problems in cooperation with the Social Security Administration. First of all, the deaf community needs more information about its rights. Secondly, provisions for communication must be formalized. Thirdly, the definition of deafness requires some clarification. While the objectives have not been met at this writing, the excellent reception from federal Social Security personnel justifies optimism for a speedy resolution of the difficulties.

Basic to all service delivery programs at the Deafness Center is the concept of developing community resources to handle service delivery. Deafness Center efforts are designed to supplement rather than to duplicate or supplant existing community resources. Service per se is not the role of an RT center. Rather, provision of direct services to deaf clients arises as an adjunct to research and training activities. The Deafness Center maintains close relations with other agencies which work with deaf people. The major service provided by the Deafness Center is referral to such agencies, following brief counseling to determine the nature of the presenting problem.

Client Characteristics

1. Age	1-16 years	74
	16-64 years	283
	65 and over	14
2. Sex:	Male	213
	Female	158
3. Minority Group:	Puerto Rican	72
	Black	62
	Asian American	14
4. Income Status:	Public Support	106
	Self-Support	110
	Modified Self-Support	155
5. SRS/RSA Priority Target Groups:	Severely Disabled	92
	Drug Abusers	6
(All 371 clients were deaf)	Alcoholics	3
	Public Offenders	21

As noted above, 371 deaf clients received referral and counseling under RT Center funds. In addition, approximately 925 deaf community members participated in short-term training programs or attended presentations by Deafness Center staff members. Thus, the total number of deaf persons served during the current reporting year was 1,296.

COOPERATIVE RELATIONS WITH PUBLIC AND VOLUNTARY AGENCIES

The framers of the recently adopted Model State Plan for Vocational Rehabilitation of Deaf Clients set forth the need for a technical assistance facility: "This role should include consultant and information-clearinghouse activities, and utilization of meetings, workshops and similar capacity-building efforts" (PRWAD Monograph No. 3, 1973, page 23).

The Deafness Center had endeavored to fulfill that role by making its resources available to a wide variety of agencies. No record has been made of informal contacts.

The formal relationships are summarized in Table 1 and extensively detailed in the narrative following. Twenty-eight relationships were established with national, state and local government agencies and an almost equal number of voluntary agencies. Not far behind are the schools for deaf students; if taken together with universities and colleges, these relations with educational institutions amount to almost one third of the total. Services were given to 22 industries, the largest portion being in television. Eleven consumer groups and 7 professional organizations complete the list.

Table 1 also shows the same data for the last reporting period. In the previous year, the growth observed has come largely from voluntary agencies, education, industry and consumer organizations — all of which showed a 40 to 60 percent increase over the previous year. Government relations increased by only 21 percent and professional organizations by less than 17 percent. Of course, two years' experience is insufficient to plot a trend, but the overall figures are encouraging in their demonstration of substantial responsiveness to the field in providing technical assistance and consultation.

University Interdepartmental Efforts

The Deafness Center maintains a multidisciplinary approach to research and training in practice as well as philosophy. Students in deafness-related programs matriculate in seven schools within New York University and in 18 programs.

Interdepartmental cooperation has been splendid. Not only are students recommended by the Deafness Center accepted throughout New York University, but also its overall efforts have received excellent support. As one measure of acceptance by the general faculty, the request that sign language be allowed to fulfill the doctoral language requirement was approved by the Graduate Schools of Arts and Sciences, and Education. The School of Education has given the Deafness Center the responsibility for preparation of teachers of deaf students thus achieving the merger of education and rehabilitation — an objective seldom achieved in practice.

Relations with State Vocational Rehabilitation Agencies

The Deafness Center maintains close relations with New York and New Jersey VR. Both states are represented on the Advisory Board, New York by Ms. Marian Martin and New Jersey by Mr. Arthur Sinclair. The statewide coordinators — Ms. Martha Fischer in New Jersey and Mr. Y. Eugene Levine in New York — have established active liaisons with the Deafness Center. The Center staff is fully available to both coordinators, and the staff has participated in planning programs, recruiting personnel, conducting workshops, etc.

With regard to Puerto Rico and the Virgin Islands, less has been possible. A plan has been developed and approved by Puerto Rico to train a cadre with whom long-range programs can be established.

Outside of Region II, the Deafness Center has served VR agencies in Connecticut, Iowa, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and Virginia. The program for the New England States is supported by a grant from Region I. Since each of the states has borne the extra costs involved in serving them, it has been relatively simple to extend our consultation and technical assistance to them. Routine information giving is not included in the list of cooperative relations. Data have been provided from the National Census of the Deaf Population to 34 of the state governments.

State Social Service Agencies

The Deafness Center continues to work with New York City's Human Resources Administration. The Mayor's Office for the Handicapped has increased its advocacy efforts and its demands upon our staff. Also, the Deafness Center provides information and consultation to the New York State Temporary Commission to Study the Problems of the Deaf and Hearing Impaired.

Regional Office Relations

Region II has generously supported several training programs. Foremost among these have been the Deaf Community Development series. Proposals are now pending to train interpreters and to develop a cadre of specialists in deafness for Puerto Rico. The Deafness Center has profited greatly from the guidance and encouragement given by the Regional Office members. As one indication of their interest, the Deafness Center was invited last October to present a program at a well-attended meeting of the staff.

Relations with Other Agencies

As the Deafness Center's reputation has grown, it is more and more frequently asked to consult with other agencies. Much consultation has been on educational problems. The Deafness Center has also conducted workshops in cooperation with a number of educational institutions (e.g., Norfolk State College and University of Puerto Rico).

Relations with Consumer Groups

The Deafness Center endeavors to be in intimate contact with the deaf community at all times. The National Association of the Deaf has graciously agreed to assist the Deafness Center in the distribution of its publications. The NAD's proposal will reduce dissemination costs and increase circulation. In turn, the Deafness Center has acted as consultant to the Iowa and Illinois Associations of the Deaf, chaired the Research and Development Committee of the NAD, assisted local organizations of deaf people in making television programs, etc. The Deafness Center is heavily involved in the forthcoming VIIth World Congress of the Deaf, in 1975.

TABLE 1

Cooperative Arrangements between the Deafness Research & Training Center and Various Agencies: 1972-73 and 1973-74.

Type of Organization	Number of Organizations 1972-73	1973-74
All Organizations	99	141
Federal, State, Local Government Agencies	23	28
Voluntary Agencies	19	27
Schools for Deaf Students	16	26
Industry	13	22
Colleges and Universities	14	19
Consumer Organizations	8	11
Professional Organizations	6	7

TABLE 2

Students in Deafness-Related Programs, Degree and Source of Support: Fall, 1973

Program	Total	Doctoral			Masters				
		RSA	R&T	Self	RSA	R&T	OE	VR	Self
All Programs	114	0	6	26	9	3	10	1	59
School of Education									
Audiology	2			2					
Communications (Media)	1			1					
Counselor Education (Psychol. Counseling)	8		2	2	2				2
Educational Admin.	1				1				
Educational Psychology:									
Pastoral Counseling	2								2
School Psychology	1			1					
Deafness Rehabilitation	17		3	9		2			3
Teacher Training	56						10		46
Educational Sociology	1			1					
Educational Theater	2			2					
Linguistics	2			2					
Physical Education	1								1
Voc. Rehab. Counseling	13			4	4	1		1	3
School of the Arts									
Film and Television	1								1
Graduate School of Arts and Science									
Clinical Psychology	1			1					
School of Commerce									
Economics	1			1					
School of Public Administration	1		1						
School of Social Work	2				2				
School of Business Administration	1								1

Abbreviations

RSA — Rehabilitation Services Administration.
R&T — Employees of Deafness Research & Training Center receiving tuition remission.
VR — Students receiving assistance from their State VR agency.
OE — Students receiving Office of Education traineeships.
Self — Students receiving no assistance from other four sources noted.

TABLE 3

Master's and Doctor's Degrees
Earned by Students in Deafness-Related Programs: 1967-1974

Year	All		Rehabilitation Counseling		Educational[a] Psychology		Counselor Education		Other[b] Disciplines	
	Ph.D.	M.A.	Ph.D.	M.A.	Ph.D.	M.A.	Ph.D.	M.A.	Ph.D.	M.A.
All	9	104	1	13	5	74	—	8	3	9
1967	1	2	—	—	1	2	—	—	—	—
1968	1	3	—	—	1	2	—	—	—	1
1969	1	5	—	—	1	5	—	—	—	—
1970	3	6	—	2	—	4	—	—	3	—
1971	—	6	—	—	—	3	—	2	—	1
1972	2	10	—	4	2	2	—	3	—	1
1973	1	28	1	1	—	25	—	—	—	2
1974	—	44	—	6	—	31	—	3	—	4

[a] Includes those preparing to teach deaf students

[b] Includes Communications Media (2), Religious Education (2), Educational Theatre (1), Educational Sociology (1), Social Work (1)

Impact of Deafness Curriculum. The core of courses making up the deafness curriculum have attracted an increasingly great number of students. The cumulative impact can be briefly summarized as follows:

Academic Year	Number of Students in Deafness Programs
1970-71	34
1971-72	37
1972-73	76
1973-74	114

The number of students has increased dramatically. From 1970 to date, there has been more than a threefold increase in students who are in deafness-related programs. This remarkable gain runs counter to the declining enrollment trend throughout most programs in higher education and to the loss of federal tuition support.

CENTER ON DEAFNESS

College of Education — University of Arizona

Dr. Armin G. Turechek, Project Director

The Center on Deafness was established in June, 1973, and is part of the Rehabilitation Center, College of Education, the University of Arizona. The Center is a three year project made possible through the Arizona Department of Economic Security and the Region IX Office of the Rehabilitation Services Administration, Department of Health, Education and Welfare.

The purpose of the Center on Deafness is to develop and expand services to the deaf community. The Center has undertaken various activities to make the community aware of the needs of the deaf, and to help improve existing services.

Activities

The activities of the Center were developed in response to the needs of the deaf community in Tucson. The following is a listing of the ongoing and completed projects:

1) *An Analysis of Community Services:* The staff is conducting a study of the use of community resources by deaf people, and possible approaches to assisting agencies in expanding and improving services to the deaf and their families.

2) *Assistance to Community Agencies:* The project provides interpreting services, instruction in manual communication and consultations to devise additional helping services for deaf persons. In some agencies, it may be sufficient to provide information on interpreters and available resources when the need arises.

3) *Public Education and Preparation of Media:* To increase community awareness on deafness and to inform deaf people of services available to them, the Center provides presentations at community service agencies, club meetings, public schools, and so on. The Center also publishes a newsletter, ACTION LINE, which is sent to deaf people and service agencies throughout Tucson. Brochures have been printed to help provide information related to the following areas:

- Community Services and the Deaf Client
- The Physician and the Deaf Patient
- The Police Officer and the Deaf Person
- Parents and Their Deaf Child: Listen With Your Heart
- Interpreting: A Career in Serving Deaf People

There is also available a book entitled *"The Deaf Worker in Arizona: An Asset to Business and Industry."*

4) *Community Workshops:* Seminars/Institutes and Workshops are held for various agencies, organizations and groups to promote a better understanding of deafness and how better communication with the deaf can be achieved. The workshops help to resolve questions which are considered important to the development of an effective network of community services for deaf people and have generated new ideas and programs such as classes in manual communication in elementary and secondary schools.

The grant under which the Center on Deafness operates is described below:

Grant No.: 36-P-45335/19-02	**Project Title:** *Model Community Services Delivery System for Hearing Impaired*
Duration: 1973-1976	**Sponsoring Institution:** The University of Arizona
Total Amount: $159,254	**Project Director:** Armin G. Turechek, Ed.D.

Description: The Model Community Services Delivery System for Hearing Impaired project was established in July, 1973, by a grant from the Social and Rehabilitation Service to the University of Arizona. This project, now called the Center on Deafness, is placed in the Rehabilitation Center of the University of Arizona.

The general objective of this project is to substantially improve the service capabilities of the Rehabilitation Center in order to create a viable community services delivery system for hearing impaired residents of Tucson, Arizona. The specific aims are (1) to expand the program of services provided by the Rehabilitation Center in order to better serve deaf people; (2) to use the new program as a central location for efforts to establish a community services delivery system for the deaf; (3) to assist community agencies to improve their capabilities in serving deaf people; (4) to foster increased public understanding of deafness; (5) to develop sources of ongoing funding for community services for the deaf; (6) to evaluate project activities annually; and (7) to disseminate project findings nationally.

The main thrusts of the Center's activities have been in the following areas:

A. Analysis of community services. All known community service agencies were studied to determine what services were available; the extent to which deaf people and their families use these services; problems involved in serving the deaf; and ways the center could assist in increasing each agency's ability to serve the deaf.

B. Assistance to community agencies. Interpreters were provided, assistance in developing more effective ways of working with deaf clients; and establishing classes in manual communication for agency staffs.

REGIONAL RESOURCE CENTER FOR THE DEAF

Oregon College of Education

Richard E. Walker, Ed.D., Director

During the past 12 years a specialized program for rehabilitation personnel who are currently or who wish to work with the deaf and hearing impaired has been conducted on the campus of the Oregon College of Education. This Counseling of the Deaf and Hard of Hearing Adult Program has been conducted four times each year for a period of four weeks each session. Each program participant earns 9 hours of either graduate or undergraduate credit which includes courses in Orientation to the Deaf and Hearing Impaired, Guidance and Counseling the Deaf and Manual Communication.

The major purpose of the program is to provide an educational and training opportunity to professional personnel in order to provide increased and upgraded service to the deaf and hearing impaired. Priority for admission to the program is given to personnel in Region X who:

(a) are employed or about to be employed by state rehabilitation agencies.

(b) are employed to provide support service to rehabilitation personnel.

These include, but are not limited to, social workers, psychologists, speech pathologists, and audiologists, workshop supervisors, counselors aids and religious. If, after considering applications from Region X personnel, there are funds still available, then applications from other states are considered. Selection for admission to the program is accomplished in cooperation with a program advisory committee consisting of both deaf and hearing individuals who work closely with the program faculty. By operating in this manner over a number of years, the service to the deaf and hearing impaired in Region X has been increased. Additionally, this program has served professional individuals from 41 states and 2 foreign countries.

The establishment of the Regional Resource Center for the Deaf and Hearing Impaired, in conjunction with the Counseling of the Deaf Program, in July of 1973 has made the Oregon College of Education the center of information and training services for the deaf in Region X and the northwestern section of the United States. The Regional Resource Center was established in cooperation with the vocational rehabilitation agencies in Alaska, Idaho, Oregon and Washington. The Resource Center was established as an information and resource center to provide information on deafness to professionals, public and private agencies, deaf individuals, parents and the public at large. The center maintains a computerized program and will provide information on personnel, programs and facilities that serve the deaf in Region X. A separate computer program contains literature which is relevant to rehabilitation of the deaf. These two computer programs provide the means of responding immediately to requests for information. Information from each of the four states is obtained by soliciting information from each of the states directly and from the members of the center advisory committee. The advisory committee consists of a representative of the deaf associations in each state, a representative of the division of vocational rehabilitation in each state and representatives from two private organizations. The board functions in an advisory capacity and assists in determining the role and function of the center, and in evaluating the effectiveness of the operation of the center.

The combined staffs of the Counseling the Deaf Program and the Regional Resource Center serve as a professionally integrated unit that provides training, consultation and information to individuals throughout the region and surrounding states. Training programs have been or will be conducted in each of the states within the region. TRIPOD meetings were conducted in each of the states and the second series of TRIPOD meetings will be held in each of the states during the 1974-75 year. Parents' organizations have been formed and the close contact with the state associations of the deaf appear to have led to increased strength and interest in each state. Activities leading to increased training for law enforcement personnel, interpreters, vocational education personnel and strengthening the Oregon Council of Organizations Serving the Deaf have been initiated.

The concept of a regional center such as this should receive careful consideration by all personnel who are providing or wish to provide service to deaf individuals. In areas covering wide geographical areas with sparse and widely scattered deaf populations, the cost per client can become exceedingly high if the services are duplicated in a number of locations. Additionally, the service can and many times does become less effective because of overlapping service, inadequacy in a number of staff and no central contact point for necessary services. A regional center, with the support of rehabilitation and other service agencies, can bring together in a central location a staff which is sufficiently large to meet the needs of the deaf and at the same time reduce the overall per client cost of serving this population. At the present time the center on the campus of the Oregon College of Education serves that purpose and may serve as a model for other such centers throughout the country.

THE CENTER ON DEAFNESS AT CALIFORNIA STATE UNIVERSITY, NORTHRIDGE

Dr. Ray L. Jones, Director
Dr. Harry J. Murphy, Assistant Director
Center on Deafness

Generally speaking, university channels lend themselves to excellent communication within a school (such as the School of Education) or a department (such as the Department of Special Education). Communication *between* schools (the School of Education, the School of Social and Behavioral Sciences) and departments (Department of Special Education, Department of Psychology) sometimes leave something to be desired because different administrative units have different priorities.

In order to facilitate communication throughout a university, especially a large one, "Centers" are being initiated on many campuses. Generally, these Centers serve a special constituency group, as the Center on Deafness does at the California State University, Northridge.

Centers tend to be very capable vehicles for implementing interdisciplinary programs which cut across multiple administrative units. Their removal from a traditional administrative structure gives them an acute responsiveness to their special constituency that is frequently the envy of colleagues on campus. Geared toward innovative programs, they tend to be able to generate special programs rapidly, and to generate a rich network of programs to serve the needs of their audience. Most "Centers" tend also to actively seek federal funding to deliver service to their constituency.

The Center on Deafness shares the characteristics noted above. Historically, service to the deaf began in 1960 when the institution (known then as San Fernando Valley State College) received a planning grant from the federal Office of Vocational Rehabilitation to initiate a "National Leadership Training Program in the Area of the Deaf". As this program began, participants and staff identified service needs among the deaf and program after program followed: short-term workshops in interpreter training and telephone communication, adult education courses, workshops to train teachers of the deaf at the secondary level, and so on. As programs were designed and implemented, resources were tapped from many divergent sources within the university community. The outreach across the university was magnified as deaf undergraduate and graduate students came to the university and fanned out across more than 200 integrated classes in a single semester.

In November of 1971, the Board of Trustees of the California State University and Colleges enacted an addition to the Education Code of the State of California, which was to establish a facility for training deaf persons at a California State College to be designated at a later date.

Two landmark decisions affected the university in 1972: On July 1, the Trustees approved the formation of a "Center on Deafness", and on September 27, the Trustees designated the university as "A Professional Center for Training Deaf Persons."

The Center on Deafness formulated these key goals:

1. To integrate qualified deaf students into university classes, and
2. To train students, both hearing and deaf, for professional careers in fields which serve deaf citizens.

Programs Administered by Center on Deafness

In conjunction with the Department of Administration and Supervision, the National Leadership Training Program in the Area of the Deaf continues to serve the field with persons trained for key positions in local, state, regional and federal programs for the deaf. Among the 175 graduates are 59 who are themselves deaf. Funding for this program comes from Social and Rehabilitation Services.

Initiated during the summer of 1974 was "A National Leadership Training Program for Professional Workers with the Deaf-Blind." Eleven participants are in the first training class (two of whom are deaf). This program is offered in conjunction with the Department of Administration and Supervision and funded through the Southwestern Regional Center for Services to Deaf-Blind Children, Sacramento, California.

Campus Services for the Deaf, funded by the California State Department of Rehabilitation is the support unit which facilitates integration for more than 130 deaf students. Support services include interpreting, notetaking, tutoring and counseling.

In 1974, the Center on Deafness joined five other colleges and universities to form a National Interpreter Training Consortium (NITC) to train interpreters in nine states. Funding for this program comes from Social and Rehabilitation Services.

The Center articulates with the Department of Special Education's Teacher Preparation Program for Teachers of the Deaf at the Secondary level (supported by the Bureau of Education for the Handicapped) and with the Drama Department for a special course in "Drama and Sign Language."

The Center sponsors a number of workshops, including two recently completed national workshops, Project DAWN and Project TRIPOD (both supported by Social and Rehabilitation Services), a Conference on Minority Deaf Rehabilitation Clients (sponsored by the California State Department of Education) and a summer workshop on Law and the Handicapped.

The center also serves the community-at-large through "Orientation to Deafness" seminars and sign language training to such groups as the Bank of America. The Center also maintains an active "Deaf Community Relations" office to involve deaf persons in the various programs of the Center, and also disseminates information to professionals in the field.

INTERNATIONAL PROGRAM
OF THE SOCIAL AND REHABILITATION SERVICE

For about twelve years the Social and Rehabilitation Service and its predecessor agencies within the Department of Health, Education, and Welfare have administered a cooperative research and demonstration program in developing countries where excess foreign currencies exist from the sale of U.S. agricultural commodities. Authority for the program is the Agricultural Trade Development and Assistance Act of 1954, as amended, or, as it is more popularly referred to, "P.L. 480."

The program seeks to serve dual purposes, in complementing domestic research and demonstrations and in addressing significant social and rehabilitation problems in the participating countries. It is designed to improve international cooperation in research of universal interest and to carry out U.S. foreign policy objectives. Research and demonstration grants are awarded to governmental and private non-profit institutions, based on satisfaction of the above criteria and official sanction by the respective governments.

Since the start of the program, more than three hundred projects have been supported in the following countries: Brazil, Burma, Egypt, India, Israel, Morocco, Pakistan, Poland, Sri Lanke, Syria, Tunisia and Yugoslavia. Many of these projects have developed or hold promise of developing new methods and techniques for use in improving rehabilitation services to persons with language and hearing impairments. To date, there have been seventeen projects with this as the primary research or demonstration goal.

A grant, awarded in 1963, to the Phonetics Institute, Zagreb, Yugoslavia, enabled Dr. Petar Guberina to devise the Verbo-Tonal Method for auditory rehabilitation of profoundly deaf individuals. This method has received widespread professional attention throughout Europe and the United States. The Social and Rehabilitation Service is now supporting a rather extensive evaluation to determine the validity and reliability of the Verbo-Tonal Method as an alternative in rehabilitating deaf and/or hearing-impaired persons. Other institutions in Egypt, India, Israel, Pakistan, Tunisia and Yugoslavia are seeking to influence the vocational success of the deaf and hard of hearing through improved delivery of needed services.

SOCIAL AND REHABILITATION SERVICE
INTERNATIONAL RESEARCH ON DEAFNESS

Grant Number Title Dates of Operation Total Amount	Sponsoring Institution and Project Director	Description of Research	Final Report
19-58015 (UAR-8-67)* Rehabilitation Center for the Deaf Sept. 1, 1966-Oct. 31, 1970 66,050 Egyptian Pounds $118,880 (equivalent)	Egyptian Association for the Welfare and Rehabilitation of the Deaf, Cairo, Egypt Mr. Ali Abdel-Ghaffar	To establish a comprehensive rehabilitation center for vocational guidance, personal adjustment, prevocational and selective placement of the deaf.	—
IND-14-65* Investigation of Techniques for Rehabilitating Deaf Persons Mar. 1, 1965-Nov. 2, 1968 187,099 Indian Rupees $24,618 (equivalent)	U.P. Deaf and Dumb Institute, Allahabad, U.P., India Dr. S.D. Nusia	To develop techniques to rehabilitate deaf persons by vocational guidance, training in indigenous crafts and other trades, and selective placement.	*None available*
19-58117 (IND-13-64)* Establishment of a Pilot Rehabilitation Unit in Audiology and Speech Pathology Aug. 1, 1964-Mar. 31, 1971 688,719 Indian Rupees $90,621 (equivalent)	All-India Institute of Medical Sciences, New Delhi, India Dr. A. Sinha	To establish a pilot rehabilitation unit in audiology and speech pathology to experiment with methods of providing multi-lingual speech therapy and other audiological services in India.	*Establishment of a Pilot Rehabilitation Unit in Audiology and Speech Pathology in India*

19-58122 (IND-26-66)* An Investigation of the Audiological and Rehabilitation Needs of Persons with Speech and Hearing Disorders Dec. 1, 1965-Dec. 31, 1970 519,653 Indian Rupees $68,375 (equivalent)	Christian Medical College and Hospital, Vellore, India Y.P. Kapur, M.D.	To develop and apply hearing and speech services suited to Indian conditions; to explore possibilities for the manufacture of hearing aids, using indigenous materials; to develop rehabilitation and employment services for the speech and hearing handicapped.	*Needs of the Speech and Hearing Handicapped in India*
19-58134 (IND-38-68)* Development of Rehabilitation Services for Patients with Speech and Hearing Disorders Aug. 1, 1967-July 31, 1972 536,276 Indian Rupees $70,563 (equivalent)	All-India Institute of Speech and Hearing Disorders, Mysore, South India N. Rathna, Ph.D.	To develop a pattern of rehabilitation services for effective management of patients with hearing and speech disorders.	—
ISR-24-65* Research and Demonstration Pilot Project on Rehabilitation of Deaf Persons in Israel Sept. 1, 1964-Aug. 31, 1968 303,300 Israeli Pounds $72,214 (equivalent)	The Association of the Deaf and Mute in Israel and the Helen Keller House, Tel-Aviv, Israel N. Sade-Sadowsky, M.D.	To assess the training potentialities of 14 to 18 year old deaf persons in diamond cutting and polishing and in carpentry and to demonstrate that deaf people are a source of reliable manpower for the continuously expanding industries.	*Research and Demonstration Pilot Project on Rehabilitation of Deaf Persons in Israel*

Grant Number Title Dates of Operation Total Amount	Sponsoring Institution and Project Director	Description of Research	Final Report
19-58047 (ISR-32-67)* Visual Communication Systems for the Rehabilitation of the Deaf Apr. 1, 1967-Sept. 30, 1972 230,029 Israeli Pounds $65,723 (equivalent)	The Hebrew University, Jerusalem, Israel I.M. Schlesinger, Ph.D.	To investigate the potentialities of visual communication systems for rehabilitation of the deaf.	—
19-58243 (PAK-11-67)* Establishment of a Pilot Rehabilitation Research and Training Program for the Deaf May 1, 1968-Feb. 9, 1974 217,000 Pakistani Rupees $45,628 (equivalent)	The Association for the Welfare of the Adult Deaf and Dumb, Karachi, Pakistan Mr. M.Y. Butt	To study and develop techniques for rehabilitating deaf persons by vocational guidance, personal adjustment services and training in indigenous crafts and other recommended trades, and to demonstrate that deaf persons are a source of manpower for the continuously expanding industries in Pakistan.	—
19-58327 (POL-19-70)* Rehabilitation Studies of Breathing, Voice, and Speech after Total or Subtotal Laryngectomy June 1, 1970-June 30, 1974 2,102,000 Polish Zlotys $95,199 (equivalent)	The Otolaryngological Clinic of the Medical Academy, Crakow, Poland Jan Sekula, M.D.	To carry out long-term research on the progress of rehabilitation in different social groups of patients after various types of larynx cancer operations; to develop most efficacious rehabilitation methods for post-operative patients.	—

YUGO-2-63* Studies and Investigation of Speech in Relation to the Rehabilitation of the Deaf Working with Restricted Bands of Frequencies Dec. 20, 1962-March 31, 1968 1,744,092 Yugo Dinars $104,358 (equivalent)	University of Zagreb, Institute of Phonetics, Zagreb, Yugoslavia Petar Guberina, Ph.D.	To conduct case studies in the use of restricted bands of frequencies in auditory training of the deaf and hard of hearing.	*Case Studies in the Use of Restricted Bands of Frequencies in Auditory Rehabilitation of the Deaf*
YUGO-7-66* Establishment of an Experimental Vocational Guidance and Personal Adjustment Center for the Deaf Mar. 1, 1966-Feb. 28, 1970 2,435,000 Yugo New Dinars $162,333 (equivalent)	Federation of the Deaf of Yugoslavia, Belgrade, Yugoslavia Mr. Dragoljub Vukotic	To set up a comprehensive program for the assessment of physical, psychological, social and vocational capacities for deaf people and establish an experimental vocational guidance and personal adjustment center for the deaf.	—
19-58404* Essential Aspects of Deafness Mar. 1, 1970-Feb. 28, 1974 1,594,672 Yugo New Dinars $95,776	Center for the Rehabilitation of the Deaf, Belgrade, Yugoslavia Ljubomir Savic, Ph.D.	To conduct a cross-cultural study of the relationship between early total deafness and personality development and to develop a prototype of a complex research and complete rehabilitation program for the deaf that can serve as a model for other countries.	—

Grant Number Title Dates of Operation Total Amount	Sponsoring Institution and Project Director	Description of Research	Final Report
19-58408 (YUGO-41-70)* Rehabilitation of Persons with Functional Speech Defects Nov. 1, 1970-Oct. 31, 1973 1,875,000 Yugo New Dinars $112,612 (equivalent)	Institute for Schooling and Rehabilitation of Persons with Hearing and Speech Defects, Kotor, Yugoslavia Cvetko Brajovic, M.D.	To evaluate methods of rehabilitating persons with functional speech defects (stutterers).	—
19-P-58371 Demonstration Project for Therapeutic Re-education and Rehabilitation of Deaf and Hard of Hearing Individuals August 7, 1972-August 6, 1975 57,120-Tunisian dinars $120,000 (equivalent)	Association Tunisienne D'Aide Aux Sourds-Muets (ATASM) Tunis, Tunisia Dr. Atallah Mustapha	To assess the validity of established rehabilitation programs for the deaf and to determine the feasibility of extending programs to satellite centers.	—
19-P-58429 Research Program on Develop- New Rehabilitation Techniques for Language Development in Hard of Hearing Children and Young Adults April 25, 1972-April 24, 1975 2,400,000 Yugoslav New Dinars $141,176 (equivalent)	Center of Hearing, Speech and Voice Skopje, Yugoslavia Professor Slavtcho Keramitchievsky	To study problems of psycholinguistic development in hard of hearing children and young adults and to devise suitable rehabilitation methodologies.	—

19-P-58441 Evaluation of the Verbo-Tonal System as a Rehabilitation Technique Oct. 7, 1972-Oct. 6, 1976 3,162,000 Yugoslav New Dinars $186,000 (equivalent)	Center for the Rehabilitation of Speech and Hearing, Zagreb, Yugoslavia Dr. Petar Guberina	To assess the validity and reliability of the verbo-tonal method of auditory rehabilitation.	—
19-P-58331 Surgical Rehabilitation of Speech and Voice in Laryngectomized Patients Sept. 1, 1972-Mar. 1, 1975 2,299,500 Polish Zlotys $104,144 (equivalent)	Pomeranian Medical Academy Szczecin, Poland Professor Erwin Mozolewski	To test the pharyngeal shunt as an effective surgical and rehabilitative technique for laryngectomized patients.	—

BUREAU OF EDUCATION FOR THE HANDICAPPED
U.S. OFFICE OF EDUCATION

Research and Demonstration Projects in Deafness

Division of Innovation and Development

The Division of Innovation and Development is responsible for stimulating the improvement of educational programs for handicapped children, including the deaf, through support of research and research related activities.

Legislative Authority

The passage of P.L. 88-164, late in 1963, will be marked in history as the birthdate of research for handicapped children in the U.S. Office of Education. This law authorized $2 million for research and demonstration projects related to the education of handicapped children. Section 302 of P.L. 88-164 has been amended twice since its enactment. Along with increases in funds came increases in flexibility of programs. P.L. 89-105 permitted construction of a comprehensive research and demonstration center; P.L. 90-247 permitted the support of research training and operation of an intramural research program. This program is presently authorized under P.L. 91-230, Part E, Research in Education of the Handicapped. The original Research and Demonstration Branch of the Division of Handicapped Children and Youth became the Handicapped Children and Youth Branch of a Division of the Bureau of Research in July of 1965. In January of 1967, it became the Division of Research in the Bureau of Education for the Handicapped. The name of the unit was changed to the Division of Innovation and Development in January of 1974.

Activities

The Division of Innovation and Development is responsible for stimulating the improvement of educational programs for handicapped children, including the deaf. There are no restrictions placed on the type of projects which can be supported, provided they fit within the broad definition of research or related activities, defined by law to include research, demonstration, surveys, and research training. During the period 1964-1972, 65 projects concerned specifically with the Hearing Impaired have been approved, representing $6,622,606 out of a total obligation for all types of handicap of $83,982,997. Proposals approved were submitted by institutions of higher learning, public and private schools, State education agencies, research organizations, and other groups such as hospitals, clinics, residential institutions, professional organizations, foundations, etc.

Grant No.: OEG-O-72-5339	**Project Title:** Methods of Fostering Language Development in Deaf Infants
Duration:	**Sponsoring Institution:** Lexington School for Deaf
Total Amount:	**Project Director:** Dr. Jules M. Greenstein

Description: The purpose of the project is to develop and evaluate innovative procedures for fostering language acquisition in hearing-impaired infants under 16 months of age. Inexpensive voice-activated electronic devices will be developed for reinforcing and shaping infant vocalizations, along with toys for promoting auditory attention and the localization, discrimination, and interpretation of the meaning of sounds. These devices for fostering receptive and productive speech and language will be included, along with instructional and curriculum materials in home-training kits for parents. Measures of infant speech and language will be constructed and validated. The effectiveness of early auditory training will be evaluated by comparison of 30 infants who have participated in the project with a control group of 30 infants whose hearing-impairment was diagnosed too late for their inclusion.

Grant No.: 14-P-55462/1 (Joint with SRS)	**Project Title:** Language Training and Attention Processes in Deaf Children
Duration: 6/1/71-5/31/75	**Sponsoring Institution:** Clarke School for the Deaf
Total Amount: $59,918	**Project Director:** Dr. Solis L. Kates

Description: This is a 3-year program of training in written language for deaf students, with emphasis on relationships within and between sentences. Using sequential memory, imitation, and recall of "ideal" sentences and paragraphs following films and picture sequences, deaf students will receive prompt, positive feedback of correct language patterns. Language will be exercised for obtaining and transmitting information, for verbal reasoning, and for expressing personal opinions and qualifications. Evaluations of written language skills and of their effect on reasoning will be carried out both at the beginning and at the end of this training program, as well as at the end of the first training year. This research will provide both effective training methods and measures for testing the ability to produce connected written language by deaf students age 9 and older.

The determination will be made as to the relationship between non-verbal measures of personality structure and the capacity to acquire mature, written language skills. These non-verbal measures are particularly important in the deaf person because their primary channel of learning is visual. Three measures involvng the selective, adaptive direction of attention to stimuli of a task will be used; field articulation, sharpening-leveling, and scanning. Field articulation involves the integration of relevant cues in the face of irrelevant cues in the same stimulus field. Sharpening-leveling is the ability to note small, significant differences between a current percept and memory traces of previous relevant stimuli presented in a sequence. Scanning is the ability to deploy attention in a broad and balanced way to standard stimuli, instead of limiting scanning attention to the most obvious objects and their aspects. These 3 non-verbal tests of cognitive attention will be very useful in determining their relation to language development in deaf students and their needs for additional training in perceptual skills.

Grant No.: RD 3009-S

Project Title: Improved Vocational, Technical, and Academic Training Opportunities for Deaf Persons (co-sponsors—BEH, SRS)

Duration: 2/1/69-5/31/74

Sponsoring Institution: Seattle Community College District, Seattle, Washington 98109

Total Amount: $237,500

Project Director: Stan R. Traxler

Description: To demonstrate the feasibility of using existing vocational-technical schools and community colleges customarily serving hearing students who have for some reason terminated their education prior to the successful completion of a secondary program, and to evaluate this demonstration as it progresses, in such a way that the results of this evaluation can be used to maximize its impact — both as a training plan for the deaf and as a demonstration for the establishment of similar programs elsewhere. This proposed research and demonstration project has four distinct aims: (1) to develop a set of comprehensive guidelines for establishing and conducting an effective program for deaf students within Seattle Community College which can be adopted by similar schools elsewhere) (2) to establish a regional program for the deaf which will provide academic and vocational education, guidance and counseling, exploratory instruction, personal and social adjustment for those deaf students who are training at the college; (3) to develop a systematic program of research to evaluate the effectiveness and increase the efficiency of the college in providing adult high school and post-secondary programs for the deaf and profoundly hard-of-hearing; (4) to develop special visual instructional materials and a research program which will evaluate the effectiveness of these materials.

Grant No.: RD 3269-S

Project Title: Improved Vocational, Technical, and Academic Training Opportunities for Deaf Persons (co-sponsors—BEH, SRS)

Duration: 2/1/69-5/31/74

Sponsoring Institution: St. Paul Tech. Vocational Institute, St. Paul, Minnesota 55102

Total Amount: $237,500

Project Director: Robert R. Lauritsen

Description: The project will provide technical and vocational education and counseling for post-secondary deaf youth residing in the sixth United States Civil Service Region and surrounding areas when appropriate. The St. Paul Technical Vocational Institute will be a special facility which will train deaf students in a minimum of thirty-four technical and vocational programs.

The hypothesis which this institution proposes to explore in depth is that the deaf person can more easily reach his optimum potential if given adequate technical or vocational training in specialized areas using multivariate media in an existing facility and as a result by employed at a level commensurate with his ability.

Grant No. OEG-0-74-7451	**Project Title:** Standards for Captioning of Films and Television Programs for Deaf Children
Duration: 9/1/74-3/1/76	**Sponsoring Institution:** New York University, Deafness Research and Training Center
Total Amount: $11,615	**Project Director:** Dr. A.L. Stewart

Description: The immediate objective of the proposed research is the production of a set of standards for the captioning of visual displays for deaf and hard of hearing children. Good captioning consists of the appropriate substitution of written words for the audio portion of films and television programs. Thus, captioning would broaden the experience and training available to deaf students by making accessible to them materials produced for hearing children. In addition, appropriate captioning would greatly increase the potential effecitveness of visual displays produced specifically for the education of deaf children by ensuring caption legibility, and reducing the frustration and distraction that can be caused by ill-advised planning of visual material.

The immediate emphasis will be to discover how films, filmstrips, and television programs can be used effectively for the education of deaf and hard of hearing children. The set of standards produced will specify how written words can be most effectively substituted for the audio portions of instructional programs and materials. A successful set of standards will thus specify how television programs and films produced for the education and training of hearing children can be made accessible to the population of deaf and hard of hearing children in the United States. The project will investigate the proposition that good instructional materials also require an additional standard to that common standard of matching the reading levels of the children for whom they are designed: an index of the ability to assimilate printed and pictorial visual information.

Grant No.:
OEG-0-74-7961

Project Title: Assessment of Needs for Continuing Education of the Deaf

Duration:
6/3/74-6/2/75

Sponsoring Institution: New York University, Deafness Research and Training Center

Total Amount:
$137,000

Project Director: Dr. Jerome Schein

Description: The project is divided into three major subdivisions: (a) collection of available data on education of deaf adults, (b) conduct of surveys of deaf adults, deaf leaders, and experts in education and rehabilitation, and (c) preparation of recommendations for submission to the Office of Education.

The data collection phase will be carried out through direct solicitation and review of information at several locations available to and cooperative with the Center.

To assess present needs, three surveys are planned. The first survey will be of officials in state departments of education and rehabilitation. This group represents the public interests — an important sector which must be included in the recommendations to provide a well-rounded picture of post-secondary and continuing education for deaf persons.

The second survey will be among leaders in the deaf community. These experts on deafness have many valuable insights into the needs of their constituents through their intimate, day-to-day knowledge of their deaf fellows.

The third is of the literate portion of the adult deaf population. The survey design will be that used successfully in the National Census of the Deaf Population.

Fundamental to the recommendations will be projections of the size and characteristics of the deaf population. Such projections, already prepared, need to be updated and, where necessary, revised. Then the total information will be brought together and refined into a planning document of use to the field.

Grant No.
OEG-0-74-7452

Project Title: Acoustic Parameters of the Rhythms of the Speech of Deaf Children and their Relationship to Intelligibility

Duration:
9/1/74-6/30/75

Sponsoring Institution: City University of New York

Total Amount:
$4,500

Project Director: Dr. Harry Levitt

Description: The purpose of this research is to study the temporal (rhythmic) patterns of the speech of deaf children, as compared to those of hearing children, and the relationship between the rhythmic patterns of the speech of deaf children and its intelligibility.

The production of speech sounds, or phonological segments, by deaf children is that aspect of their communication skills which has been investigated most thoroughly. All of these studies focused on the measurement of numbers of speech sounds correctly produced, and on a description of the types of speech sound errors which occurred. Some of these studies attempted to correlate speech sound error scores with measurements and/or ratings of intelligibility by naive listeners. There remains the important task of measuring the non-segmental characteristics of deaf speech production — rhythm and intonation patterns.

The intelligibility of the speech of deaf children can be enhanced by improvements in the rhythmic characteristics of their speech. Fundamental to a well-designed educational program which would incorporate training in temporal patterning, however, is the determination of the quantitative parameters of rhythm. By studying the temporal aspects of a corpus of sentences produced both by normal-hearing and deaf children, it is expected that the salient acoustic parameters of rhythm can be defined, and on the basis thereof, to suggest new directions in oral communication training for deaf children.

FEDERAL PROGRAMS ADMINISTERED OR MONITORED BY THE BUREAU OF EDUCATION FOR THE HANDICAPPED
U.S. OFFICE OF EDUCATION
FISCAL YEAR 1974 APPROPRIATION ESTIMATE

Type of Assistance	Authorization	Purpose	FY 1974 Appropriation	Who May Apply	Where to Get Information
Services					
Programs for the Handicapped, Preschool, Elementary & Secondary	Education of the Handicapped Act, P.L. 91-230, Part B	To strengthen Educational and Related Services for Handicapped, Preschool, Elementary & Secondary Children	$ 47,500,000	Local Agencies Apply to State Departments of Education	Division of Educational Services, Bureau of Education for the Handicapped
***Programs for the Handicapped in State Supported Schools**	**Elementary & Secondary Ed. Act, Title I (Sec. 103 (A) (5))**	**To Strengthen Education Programs for Children in State Operated or Supported Schools for the Handicapped**	**$ 85,778,000**	**Eligible State Agencies Apply to State Departments of Education**	**Division of Educational Services, Bureau of Education for the Handicapped**
Title III, Supplementary Educational Centers & Services	Title III, Elementary & Secondary Education Act, as Amended	To Provide Grants for Supplementary, Innovative, or Exemplary Projects for the Educational Improvement of the Handicapped	$ 20,087,000 Represents 15% of State's Total Title III Allotment	Local Education Agencies Apply to State Department of Education	Division of Educational Services, Bureau of Education for the Handicapped; or Division of Plans and Supplementary Centers, Bureau of Elementary & Secondary Education
Early Education for Handicapped Children	Education of the Handicapped Act, P.L. 91-230, Part C, Section 623	To Develop Model Pre-School and Early Education Programs for Handicapped Children	$ 12,000,000	Public Agencies & Private Nonprofit Agencies	Division of Educational Services, Bureau of Education for the Handicapped
Vocational Education Programs for the Handicapped	Vocational Education Amendments of 1968	To Provide Vocational Education & Services to Handicapped Children	$ 41,251,000 Represents 10% of the Basic State Allotment Under Part B of the 1968 Amendment to the Voc. Ed. Act	Local Educational Agencies Apply to State Departments of Education	Division of Vocational Technical Education, Bureau of Adult, Vocational & Technical Education Region Office; or Division of Educational Services, Bureau of Education for the Handicapped

***Detailed exemplary information presented in the following table.**

Type of Assistance	Authorization	Purpose	FY 1974 Appropriation	Who May Apply	Where to Get Information
Media Services and Captioned Film Loan Program	Education of the Handicapped Act, P.L. 91-230, Part F	a)To Advance the Handicapped through Film & Other Media Including a Captioned Film Loan Service for Cultural and Educational Enrichment for the Deaf	$ 13,000,000	State or Local Public Agencies and Schools, Organizations, or Groups Which Serve the Handicapped, their Parents, Employers, or Potential Employers	Division of Educational Services, Bureau of Education for the Handi capped
		b)To Contract for Research in Use of Educational and Training Films and Other Educational Media for the Handicapped, and for their Production and Distribution	(Included Above)	By Invitation	Division of Educational Services, Bureau of Education for the Handicapped
		c)To Contract for Training Persons in the Use of Educational Media for the Handicapped	(Included Above)	Public or Other Non-Profit Institutions of Higher Education for Teachers, Trainees or Other Specialists	Division of Educational Services, Bureau of Education for the Handicapped
		d)To Establish and Operate a National Center on Educational Media	(Included Above)	Institution of Higher Education	Division of Educational Services, Bureau of Education for the Handicapped
Deaf-Blind Centers	Education of the Handicapped Act, P.L. 91-230, Part C, Section 622	To Develop Centers and Services for Deaf-Blind Children & Parents	$ 14,055,000	State Education Agencies, Universities, Medical Centers, Public or Nonprofit Agencies	Division of Educational Services, Bureau of Education for the Handicapped

Information & Recruitment	Education of the Handicapped Act, P.L. 91-230, Part D, Section 633	To Improve Recruitment of Educational Personnel and Dissemination of Information on Educational Opportunities for the Handicapped	$ 500,000	Public or Nonprofit Agencies, Organizations, Private Agencies	Division of Educational Services, Bureau of Education for the Handicapped
Programs for Children With Specific Learning Disabilities	Education of the Handicapped Act, P.L. 91-230, Part G, Section 661	To Provide for Research, Training of Personnel and to Establish and Operate Model Centers for Children with Specific Learning Disabilities	$ 3,250,000	Institutions of Higher Education, State and Local Educational Agencies and other Public and Non-Profit Agencies	Division of Educational Services, Bureau of Education for the Handicapped
Regional Resource Centers for Improvement of Education for Handicapped Children	Education of the Handicapped Act, P.L. 91-230, Part C, Section 621	To Develop Centers for Educational Diagnosis and Remediation of Handicapped Children	$ 7,243,000	Institutions of Higher Education and State Education Agencies, or Combination Within Particular Regions	Division of Research, Bureau of Education for the Handicapped
Research					
Handicapped Research and Related Activities	Education of the Handicapped Act, P.L. 91-230, Part E, Section 641	To Promote New Knowledge and Developments with Reference to the Education of the Handicapped	$ 9,566,000	State or Local Education Agencies and Private Educational Organizations or Research Organizational Groups	Division of Research, Bureau of Education for the Handicapped
Physical Education and Recreation for the Handicapped	Education of the Handicapped Act, P.L. 91-230, Part E, Section 642	To Do Research in Areas of Physical Education and Recreation for Handicapped Children	$ 350,000	State or Local Education Agencies, Public or Non-Profit Private Educational or Research Agencies and Organizations	Division of Research, Bureau of Education for the Handicapped
Training					
Training Personnel for the Education of the Handicapped	Education of the Handicapped Act, P.L. 91-230. Part D, Section 632	To Prepare and Inform Teachers and Others Who Work in the Education of the Handicapped	$ 37,000,000	State Education Agencies, Institutions of Higher Education, and Other Appropriate Non-Profit Institutions or Agencies	Division of Training Programs, Bureau of Education for the Handicapped

Training of Physical Educators and Recreation Personnel for Handicapped Children	Education of the Handicapped Act, P.L. 91-230, Part D, Section 634	To Train Personnel in Physical Education & Recreation for the Handicapped	$ 700,000	Institutions of Higher Education	Division of Training Programs, Bureau of Education for the Handicapped
		Total—	$292,280,000		

Additional information on these programs may be had from:

Bureau of Education for the Handicapped
Room 2100
U.S. Office of Education
400 Maryland Avenue S.W.
Washington, D.C. 20202

ALLOCATIONS AND CHILDREN BY HANDICAPPING CONDITION FUNDED UNDER P.L. 89-313, AMENDMENT TO TITLE I, ESEA, FISCAL YEAR 1974

	TOTALS		MENTALLY RETARDED		DEAF HARD OF HEARING		VISUALLY HANDICAPPED		EMOTIONALLY DISTURBED		CRIPPLED OTHER HEALTH IMPAIRED	
	Children	Allocations	Children	Allocations	Children	Allocations	Children	Allocations	Children	Allocations	Children	Allocations
TOTALS	166,415	$85,777,778	103,639	$52,531,562	22,166	$11,356,875	8,918	$4,547,272	21,024	$11,326,669	10,668	$6,015,400
ALA.	1,368	633,507	679	314,438	422	195,424	187	86,598	67	31,027	13	6,020
ALAS.	1,835	1,464,514	203	162,014	176	140,466	22	17,558	106	84,599	1,328	1,059,877
ARIZ.	1,145	530,238	596	276,003	360	166,712	103	47,698	72	33,342	14	6,483
ARK.	2,595	1,201,718	1,917	887,743	340	157,450	184	85,209	73	33,806	81	37,510
CALIF.	4,375	2,026,019	2,132	987,309	982	454,754	125	57,886	1,136	526,070	—	—
COLO.	3,323	1,538,848	2,742	1,269,793	243	112,531	78	36,121	260	120,403	—	—
CONN.	2,689	1,516,973	1,737	979,912	532	300,122	115	64,876	244	137,650	61	34,413
DELA.	1,296	676,357	838	437,336	124	64,713	75	39,141	76	39,663	183	95,504
D.C.	1,588	948,274	1,000	597,150	49	29,260	22	13,137	133	79,421	384	229,306
FLA.	4,444	2,057,972	3,410	1,579,137	614	284,337	202	93,544	218	100,954	—	—
GA.	1,687	781,233	779	360,747	588	272,297	167	77,336	153	70,853	—	—
HAWAII	500	251,320	151	75,898	156	78,412	9	4,524	56	28,148	128	64,338
IDAHO	424	196,350	275	127,350	118	54,645	31	14,355	—	—	—	—
ILL.	10,734	5,479,386	7,258	3,704,991	594	303,219	250	127,619	1,702	868,820	930	474,737
IND.	4,631	2,144,570	3,276	1,517,083	691	319,995	176	81,504	375	173,659	113	52,329
IOWA	1,601	756,184	861	406,667	415	196,013	119	56,206	153	72,265	53	25,033
KAN.	2,381	1,102,617	1,132	524,218	379	175,511	91	42,141	571	264,424	208	96,323
KY.	1,539	712,696	983	455,217	340	157,451	125	57,886	28	12,967	63	29,175
LA.	4,602	2,131,141	3,304	1,530,049	631	292,210	219	101,417	276	127,813	172	79,652
MAINE	1,156	535,332	701	324,626	180	83,356	34	15,745	148	68,537	93	43,068
MD.	2,348	1,260,782	1,326	712,009	322	172,901	237	127,260	445	238,947	18	9,665
MASS.	7,040	3,298,662	2,683	1,257,146	1,260	590,386	242	113,392	2,097	982,570	758	355,168
MICH.	9,224	4,873,408	7,394	3,906,546	394	208,166	377	199,184	1,059	559,512	—	—
MINN.	1,254	678,289	811	438,670	259	140,093	84	45,436	68	36,781	32	17,309

	TOTALS		MENTALLY RETARDED		DEAF HARD OF HEARING		VISUALLY HANDICAPPED		EMOTIONALLY DISTURBED		CRIPPLED OTHER HEALTH IMPAIRED	
	Children	Allocations	Children	Allocations	Children	Allocations	Children	Allocations	Children	Allocations	Children	Allocations
MISS.	1,068	494,580	426	197,276	329	152,357	159	73,631	20	9,262	134	62.054
MO.	4,038	1,869,958	3,060	1,417,055	353	163,472	180	83,356	445	206,075	—	—
MONT.	701	324,626	514	238,028	95	43,994	76	35,195	16	7,409	—	—
NEB.	723	334,814	359	166,249	186	86,135	60	27,785	102	47,236	16	7,409
NEV.	281	130,129	221	102,343	16	7,409	10	4,631	32	14,819	2	926
N.H.	751	347,780	416	192,645	115	53,255	61	28,248	114	52,793	45	20,839
N.J.	6,872	4,240,298	3,375	2,082,510	586	361,585	733	452,290	1,828	1,127,949	350	215,964
N.M.	825	382,050	428	198,202	217	100,491	108	50.014	42	19,450	30	13,893
N.Y.	12,952	9,996,871	6,481	5,002,295	2,092	1,614,689	548	422,968	2,813	2,171,186	1,018	785,733
N.C.	4,619	2,139,014	2.372	1,098,449	1,049	485,782	330	152,821	456	211,169	412	190,793
N.D.	636	294,526	454	210,243	113	52,329	30	13,893	39	18,061	—	—
OHIO	11,131	5,154,655	10,393	4,812,894	259	119,940	159	73,632	320	148,189	—	—
OKLA.	1,423	658,977	830	384,364	399	184,773	119	55,108	41	18,987	34	15,745
ORE.	2,544	1,316,495	1,642	849,719	515	266,507	173	89,526	100	51,749	114	58,994
PENN.	11,242	5,775,689	5,455	2,802,561	1,203	618,053	511	262,531	2,112	1,085,061	1,961	1,007,483
R.I.	990	511,454	666	344,069	148	76,460	23	11,882	153	79,043	—	—
S.C.	2,622	1,214,222	1,920	889,132	378	175,048	153	70,853	118	54,645	53	24,544
S.D.	720	333,425	398	184,310	122	56,496	42	19,450	40	18,524	118	54,645
TENN.	1,896	878,018	1,027	475,593	336	155,598	168	77,799	365	169,028	—	—
TEXAS	11,952	5,534,851	8,308	3,847,352	1,245	576,547	939	434,842	1,040	481,613	420	194,497
UTAH	864	400,110	474	219,505	274	126,887	61	28,248	55	25,470	—	—
VT.	1,584	733,535	1,286	595,534	104	48,161	16	7,409	74	34,269	104	48,162
VA.	2,280	1,055,845	645	298,693	608	281,559	578	267,666	185	85,672	264	122,255
WASH.	2,896	1,368,534	2,214	1,046,248	339	160,198	122	57,652	144	68,049	77	36,387
W. VA.	1,017	470,963	380	175,974	201	93,081	126	58,349	162	75,021	148	68,538
WISC.	4,190	2,155,588	2,587	1,330,908	249	128,101	151	77,683	623	320,509	580	298,387
WYO.	440	222,033	360	181,663	42	21,194	8	4,037	30	15,139	—	—
GUAM	145	70,896	145	70,896	—	—	—	—	—	—	—	—
P.R.	1,234	571,453	615	284,800	424	196,350	—	—	39	18,061	156	72,242

PROFESSIONAL TRAINING PROGRAMS IN THE AREA OF DEAFNESS EDUCATION

Data Supplied by
Judith G. Fein, Program Specialist
BEH/Division of Personnel Preparation

Legislative Authority

On April 13, 1970, President Nixon signed Public Law 91-230, the Elementary and Secondary Education Amendments of 1969. The amendments create a single "Education of the Handicapped Act" and repeal separate authorities for Office of Education programs for the handicapped. Under Public Law 91-230 the Bureau of Education for the Handicapped (BEH) is charged with the administration of all parts of the Education of the Handicapped Act. The Division of Personnel Preparation within BEH is responsible for administering P.L. 91-230, Title VI, Part D (Training Personnel for the Education of the Handicapped.)

Purpose

Grants are made to institutions of higher education, State educational agencies and other appropriate institutions and agencies for assistance in the preparation of persons employed or about to be employed as teachers of handicapped children, supervisors of teachers, speech correctionists or other personnel providing special services for the education of handicapped children. The grants may also be used for training teachers and specialists and for research in fields related to the education of handicapped children. The financial assistance may be used to help institutions cover the training costs for such personnel and establish and maintain fellowships or traineeships.

Institutions of higher education and State Education agencies may submit applications for grants in any or all areas of the handicapped included under Public Law 91-230 (i.e., mentally retarded, hard of hearing, deaf, speech impaired, visually handicapped, seriously emotionally disturbed, crippled or other health impaired children and those with specific learning disabilities who require special education and services).

Types of Programs

The Division of Personnel Preparation administers three basic types of program assistance grants. They are for Institutions of Higher Education, State Educational Agencies, and Special Projects.

Institutions of Higher Education Program: The purpose of the higher education program is to provide grants to departments or combinations of departments for assistance in establishing and maintaining programs of study for such periods of time as the institution may define. Only institutions of higher education may apply under this part of the program.

State Educational Agencies Program: The purpose of this program is to provide financial assistance to the SEA's for establishing and maintaining directly or through grants to institutions of higher education, programs for training personnel engaged, or preparing to engage in employment as teachers of the handicapped or as supervisors of such teachers. Only State educational agencies may apply under this part of the program.

Special Projects Program: The purpose of the Special Projects Program is to provide an opportunity for conceptualizing and implementing, on a trial basis, approaches which are basically new or are significant major modifications of existing programs. Awards under this program may be utilized to plan, initiate and evaluate new programs for the preparation of personnel to serve handicapped children and may include support of programs devoted entirely to the problems of handicapped children or programs which include the handicapped as part of a more comprehensive program. Institutions of higher education, state educational agencies and other non-profit public and private agencies may apply under this part of the program.

The following special projects in the area of hearing impaired were funded for the 1973-74 academic year.

Institution:	**Project Director:**
Gallaudet College Washington, D.C.	Norman L. Tully

"Graduate Training Program for the Preparation of Guidance Counselors of the Deaf." Project to prepare graduate level guidance counselors of the deaf to work effectively within the school system to serve the psycho-social needs of hearing impaired students.

Institution:	**Project Director:**
University of Rochester Rochester, New York	Harold L. Munson

"Career Development in the Education of the Deaf: A Program Model, Materials and Practices and Procedures for Preparing Teachers to Implement It." Project to establish a model career development program for the education of the deaf and to test practices and materials which can be used in preparing educators of the deaf to implement the model program.

Institution:	**Project Director:**
New York University Deafness Research and Training Center New York, New York	Doris W. Naiman

"A Regional Training Program for Professional After-School Staff in Residential Schools for Deaf Children." Project to produce a prototype for regional in-service training of professional after-school staff in 7 residential schools for deaf children.

Institution:	**Project Director:**
Eugene O'Neill Theatre Center National Theatre of the Deaf Waterford, Connecticut	David F. Hays

"Program of Study for Teachers of the Deaf Leading to a Master of Arts Degree in Theater Education." Project to offer a master of Arts degree for deaf people and others interested in creative drama for the deaf.

Institution:	**Project Director:**
University of Utah Salt Lake City, Utah	Grant B. Bitter

"Facilitating the Integration of Hearing Impaired Children into Regular Public School Classes." Project to develop a model for preparing intervention specialists to facilitate the integration of hearing impaired children into regular classes; emphasis is on preparation of regular teachers, special tutors and normal hearing peers.

Program Priorities

The following program priorities were stressed in the funding process for academic year 1974-75: Preparation of personnel to serve severely and multihandicapped children, preschool handicapped children and infants, and handicapped children in areas where large needs still exist (i.e., seriously emotionally disturbed); recruitment and selection of personnel from minority groups and trainees from the general education personnel surplus; continuation, but not expansion, of doctoral level programs, especially in areas of greatest need; training of personnel to work in career or vocational education programs as well as in areas of national and regional need such as the visually handicapped; adherence to the requirements described in the regulations for personnel preparation programs; and, cooperative planning efforts between State education agencies and institutions of higher education.

New Programs

The Division of Personnel Preparation will also support training programs in the following areas during academic year 1974-75: 1) The preparation of paraprofessional personnel to work with handicapped children, and 2) The preparation of general classroom teachers to participate in the education of handicapped children who are placed in their classrooms. Projects will include activities to stimulate changes in teacher certification requirements and to conduct inservice preparation of principals, supervisors and other regular education personnel.

TEACHER EDUCATION PROGRAMS IN THE AREA OF THE DEAF

The schools that have preparation programs for professional personnel in the education of the deaf and received funds from the U.S. Office of Education, Bureau of Education for the Handicapped, Division of Personnel Preparation for academic year 1973-74 are listed below. A person wishing specific information on financial assistance and programs available should write directly to the institutions of higher education in which he is interested, since application materials are available only from these sources.

Eugene B. Cooper, Chairman
Department of Speech
University of Alabama
University, Alabama 35486

George Leshin, Chairman
Dept. of Special Education
University of Arizona
Tucson, Arizona 85721

Joseph M. Sadnavitch, Head
Div. of Special Education
University of Arkansas
Fayetteville, Arkansas 72701

Harry V. Wall, Chairman
Dept. of Special Education
California State University
Los Angeles, California 90032

Gordon F. Johnson, Coordinator
Special Education
Fresno State University
Fresno, California 93710

Kenneth Armstrong, Chairman
Dept. of Spec. & Rehab. Ed.
California State University
Northridge, California 91324

Patrick O'Donnell, Chairman
Dept. of Special Education
California State University
San Francisco, California 94132

Harriet G. Kopp, Chairperson
Dept. of Speech Pathology
& Audiology
California State University
San Diego, California 92115

Edgar L. Lowell, Director
John Tracy Clinic
Univ. of Southern California
Los Angeles, California 90007

Katherine Butler, Chairwoman
Dept. of Special Education
California State University
San Jose, California 95192

Daniel C. McAlees, Dean
School of Special Education
Univ. of Northern Colorado
Greeley, Colorado 80631

Chris Deprospo, Chairman
Dept. of Special Education
So. Connecticut State College
New Haven, Connecticut 06515

Philip Schmitt, Chairman
Department of Education
Gallaudet College
Washington, D.C. 20002

Philip H. Mann, Coordinator
Special Education
University of Miami
Coral Gables, Fla. 33124

James T. Graham, Director
Dept. of Communicative Disorders
Emory University
Arlanta, Georgia 30322

Glenn A. Vergason, Chairman
Dept. of Special Education
Georgia State University
Atlanta, Georgia 30303

Harold R. Phelps, Chairman
Dept. of Special Education
Illinois State University
Normal, Illinois 61761

David R. Rutherford, Chairman
Dept. of Communicative Disorders
Northwestern University
Evanston, Illinois 60201

John J. O'Neal, Chairman
Dept. of Speech & Hearing Sciences
University of Illinois
Champaign, Illinois 61820

Elizabeth F. Spencer, Chairwoman
Dept. of Special Education
Ball State University
Muncie, Indiana 47306

Edward L. Meyer, Chairman
Dept. of Speech Education
University of Kansas
Lawrence, Kansas 66044

Leonard S. Bowlsbey, Chairman
Dept. of Education
Western Maryland College
Westminster, Md. 21157

Frank Garfunkle, Chairman
Dept. of Special Education
Boston University
Boston, Mass. 02215

Alan J. Marvelli, Director
Teacher Education Program
Smith College
Northampton, Mass. 01060

Raymond Wyman
Media Center, School of Education
University of Massachusetts
Amherst, Mass. 01002

Frank Wawrzaszek, Head
Dept. of Special Education
Eastern Michigan University
Ypsilanti, Michigan 48197

Thos. J. Wentland
Dept. of Communicative Disorders
University of Mississippi
University, Mississippi 38677

Olivar Overkamp, Chairman
Dept. of Education
Fontbonne College
St. Louis, Mo. 63105

Dr. S. Richard Silverman,
Chairman
Dept. of Speech & Hearing
Washington University
St. Louis, Mo. 63130

Aaron H. Armfield, Chairman
Dept. of Special Education
University of Nebraska
Omaha, Nebraska 68101

Sr. Mary I. Delaney
Dept. of Sepcial Education
for the Deaf
Canisius College
Buffalo, New York 14208

Barnard Mackler, Director
Hunter College —
City University of New York
695 Park Avenue
New York, N.Y. 10021

Dave Heintz
Dept. of Ed. Psychology
New York University
Washington Square
New York, N.Y. 10003

Robert Meyer, Chairman
Dept. of Special Education
SUNY State College at Geneseo
Geneseo, N.Y. 14454

Frances P. Connor, Chairwoman
Dept. of Special Education
Teachers Coll., Columbia Univ.
525 W. 120th Street
New York, New York 10027

W. Clyde Taylor, Jr., Chairman
Dept. of Education
Lenoir Rhyne College
Hickory, North Carolina 27707

John W. Kincheloe, Chairman
Division of Special Education
Minot State College
Minot, North Dakota 58701

Louis A. Fliegler, Chairman
Dept. of Special Education
Kent State Universtiy
Kent, Ohio 44240

Donald H. Zemanek, Head
Dept. of Special Education
University of Cincinnati
Cincinnati, Ohio 45221

Dr. Thomas Stephens, Director
Faculty for Exceptional Children
The Ohio State University
Columbus, Ohio 43210

John W. Keys, Chairman
Dept. of Comm. Disorders
Univ. of Oklahoma Med. Center
Oklahoma City, Okla. 73104

H. William Brelje
Dept. of Education
Lewis & Clark College
Portland, Oregon 97219

Dennis J. Fahey, Director
Dept. of Sp. Ed. & Rehab.
Oregon College of Education
Monmouth, Oregon 97361

James D. Bryden, Chairman
Dept. of Comm. Disorders
Bloomsburg State College
Bloomsburg, Pa. 17815

Joseph Newman, Chairman
Dept. of Sp. Ed. & Rehab.
Univ. of Pittsburgh
Pittsburgh, Pa. 15213

Cruz Cancel
School of Speech Pathology
University of Puerto Rico
San Juan, P.R. 00936

Dr. Thomas P. Gardner
Univ. of Tenn. Medical Units
Child Development Center
Memphis, Tennessee 38105

Roger M. Frey, Head
Dept. of Special Education
University of Tennessee
Knoxville, Tennessee 37916

Freeman McConnell, Chairman
Div. of Hearing & Speech Sciences
School of Medicine
Vanderbilt University
Nashville, Tennessee 37232

Peggy Harrison, Chairwoman
Dept. of Comm. Disorders
Southern Methodist University
Dallas, Texas 75222

June Grant, Director
Education of the Deaf
Trinity University
San Antonio, Texas 78212

Lennart L. Kopra, Chairman
Dept. of Speech
Univ. of Texas at Austin
Austin, Texas 78712

Robert L. Erdman, Chairman
Dept. of Special Education
University of Utah
Salt Lake City, Utah 84112

Helen G. Burr, Chairwoman
Dept. of Sp. Path. & Audiology
University of Virginia
Charlottesville, Va. 22903

James Q. Affleck, Chairman
Dept. of Special Education
University of Washington
Seattle, Washington 98195

James L. Olson, Chairman
Dept. of Except. Education
University of Wisconsin-Milwaukee
Milwaukee, Wisconsin 53201

Gerald F. Johnson, Asst. Dean
School of Comm. Disorders
Wisconsin State University
Stevens Point, Wisconsin 54481

CAPTIONED FILMS AND TELECOMMUNICATION/LEARNING RESOURCES BRANCHES, DIVISION OF MEDIA SERVICES

Compiled by Ernest E. Hairston,
Education Program Specialist

Introduction

Since the last issue of the *Deafness Annual* the Bureau of Education for the Handicapped and, particularly, the Media Services and Captioned Films Branch have undergone extensive changes, both in organization and in sponsored programs. Major ongoing programs and Media Centers sponsored by the branch were subject to re-letting by competitive bids. Affected are the Regional Media Centers (RMC's) and the Educational Media Distribution Center (EMDC) as well as the Special Education Instructional Materials Center (SEIMC's). The Area Learning Resource Centers (ALRC) and Regional Resource Centers (RRC), both described in the content, are the successor-projects of RMC-SEIMC-RRC network and are in addition to the National Center on Educational Media and Materials for the Handicapped (NCEMMH) which was established by competitive bid in 1972. The EMDC was re-let under the name of Captioned Films for the Deaf Distribution Center (CFDDC).

Purpose, Background, and Legislative History

The Captioned Films and Telecommunication Branch (CFT) of the Division of Media Services, Bureau of Education for the Handicapped, U.S. Office of Education, was established to alleviate the ever-widening educational, cultural, and social gap between deaf persons and persons with normal hearing.

Over the past sixteen years, the Media Services Division has grown extensively. Beginning with enactment of Public Law 85-905, which authorized the establishment of a loan service for deaf individuals and groups and received an initial funding of $78,000, the program has grown to its present allocation of $13 million annually; $13.5 million is projected for fiscal year 1975. In the beginning, the program was modeled after the private non-profit venture started in 1950 at the American School for the Deaf in Hartford, Connecticut, by Captioned Films for the Deaf, Inc. This organization voluntarily dissolved its program in 1959 and donated its entire film library to the federal government.

In addition to providing deaf persons with a free loan service of acquired, or specifically produced captioned films, the law, as amended, authorized Media Services and Captioned Films (as it was known then) to conduct research, training, production, and distribution activities in the area of instructional media to promote the educational advancement of the handicapped. Due to the continued expansion of activities and to the establishment of the Bureau of Education for the Handicapped as a deputyship, the MSCF Branch became the Division of Media Services with two Branches: (1) Captioned Films and Telecommunications Branch and (2) Learning Resources Centers Branch.

As pointed out above, the enactment of Public Law 85-905 in September 1958 established a loan service for captioned films within the Department of Health, Education and Welfare (HEW) Office of Education for deaf individuals and groups. It has the following objectives:

1. To bring to deaf persons understanding and appreciation of those films which play such an important part in the general and cultural advancement of hearing persons;
2. To provide, through these films, enriched educational and cultural experiences so that deaf persons can be brought into better touch with the realities of their environment; and
3. To provide a wholesome and rewarding experience that deaf persons may share together.

To implement the provisions of this law, the Secretary of HEW was authorized to acquire films by purchase, lease, or gift; to provide for the captioning of films and their distribution; and to utilize the facilities and services of other government agencies. Federal funding of the program, administered by the Office of Education (OE), did not occur until July 1, 1959. Public Law 87-715, enacted in 1963, amended the original authorization and broadened the scope of the mission to include research and training activities.

A second amendment, Public Law 89-258, enacted in October 1965, doubled both the authorization and appropriation for captioned films to $3 million for fiscal year 1966. The new law also revised the objectives specified in the original legislation, thus permitting the program to include other areas where the needs of the deaf had not been met. The revised objectives were:

1. To provide enriched educational and cultural experiences for deaf persons by means of a free loan service of acquired or specifically produced captioned films; and
2. To promote the educational advancement of deaf persons by:
   - (a) Carrying on research in the use of educational media for the deaf;
   - (b) Producing and distributing educational media for the deaf, for parents of deaf children, and for other persons who are directly involved in work for the advancement of the deaf, or who are actual or potential employers of the deaf; and
   - (c) Training persons in the use of educational media for the instruction of the deaf.

The law as amended on April 13, 1970, through enactment of the Education of the Handicapped Act (Public Law 91-230), Part F, expanded the authorization to promote use of educational media as a means for improving the educational environment of other handicapped children, as well as of deaf individuals. This amendment established two distinctive programs: (a) captioned films for the deaf, and (b) media services. It did not alter the film program for the deaf, which is specifically a captioned film loan service.

Public Law 91-230 also authorized the Secretary of HEW to enter into an agreement with an institution of higher education for the estalishment and operation of a

National Center on Educational Media and Materials for the Handicapped. The Center will provide a comprehensive program of activities to facilitate the use of new educational technology in educational programs for handicapped persons, including designing, developing, and adapting instructional materials and other such activities. The National Center also will serve the Educational Technology needs of the Model Secondary School for the Deaf. The National Center is located at the Ohio State University, Columbus, Ohio.

When, on April 14, 1974, the Secretary recognized and approved the establishment of a Bureau of Education for the Handicapped to be headed by a Deputy Commissioner of Education for the Handicapped, the MSCF Branch was elevated to division-level status and renamed the Division of Media Services. Within the division are two branches:

(1) Captioned Films and Telecommunications Branch and
(2) Learning Resources Branch.

Under the Captioned Films & Telecommunications Branch are the various contractual programs and projects listed at the end of this article — included is the Captioned Films for the Deaf Distribution Center (formerly Educational Media Distribution Center) and the WGBH/PBS television projects.

The Learning Resources Branch encompasses the new Learning Resources System which is composed of component programs of the Special Education Instructional Materials Centers, Regional Media Centers for the Deaf, Regional Resources Centers and the National Center for Educational Media and Materials for the Handicapped. In cooperation with the States, this sytem is expected to provide a full spectrum of services including (1) identification of the handicapped child, (2) diagnosis, (3) program prescription, (4) development of needed instructional materials and (5) delivery of other appropriate support services to the learner. The purpose of this comprehensive system is to spread the responsibilities among components which vary in interest and expertise, but which work together in such a way that this system can deliver the program as a whole. The approach is compatible with the 1980 objective of the Bureau of Education for the Handicapped: an appropriate education for all handicapped children. The two programmatic areas in the system consist of the Regional Resource Centers (RRC) and the Area Learning Resource Centers (ALRC), each working with State Education Agencies. They are established in thirteen regions based on population — 13 RRC's and 13 ALRC's (At this writing, names of the 26 contractors have not yet been announced). The National Center for Educational Media and Materials for the Handicapped, an ongoing, federally funded program, is the capstone of the ALRC program.

Some major activities in the area of telecommunication include the refinement and the collection of hard data on the "decoder" which, when attached to a television set, will enable viewers to visualize captions. This is being done through a contract with Public Broadcasting Services. A contractual agreement with WGBH-TV of Boston produced 26 captioned programs of the "French Chef" and a variety of 26 additional programs have been captioned. Another major development is the captioned national newscast which is distributed through the Eastern Educational Television Network to its affiliates, with the possibility that Public Broadcasting Services will follow up and make it a nationwide effort.

Major acquisition activities center on the procurement of media and materials, and include auxiliary services as they relate to caption script and study guide preparations for instructional films, the screening and evaluation of materials for use in the program, and the distribution of these materials. Acquisitions throughout Fiscal Year 1973 included: (a) Feature films: 57 titles, 684 prints; and (b) Educational subjects: 65 titles, 4,225 prints. During that period our film library circulated 763 different titles and our depositories circulated 591.

Groups registered to borrow captioned films during FY 73 numbered 3,542. The audience count totaled 2,553,241. General interest films were shown throughout the year.

Because of commercial and contractual restrictions, captioned feature film loans continue to be restricted to deaf persons.

STAFF

Division of Media Services:	Director (Vacant) Etta Waugh, Education Assistant
Captioned Films & Telecommunications Branch:	Malcolm J. Norwood, Branch Chief Ernest Hairston, Education Program Specialist Barry Katz, Education Program Specialist James Kundert, Education Program Specialist Virginia Lewis, Interpreter Othello Williams, Program Assistant
Learning Resources Branch:	Elwood Bland, Senior Program Officer Paul Andereck, Education Program Specialist Gail Beaumont, Education Program Specialist Marie Roane, Education Program Specialist Branch Chief (Vacant)

SEIMC/RMC/RRC/NCEMMH NETWORK*

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Charles Watts, Project Director
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Phone: 231 747-9308

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James McCarthy, Principal Investigator
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Lou Alonso, Project Director
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East Lansing, Michigan 48823
Phone: 517 353-7810

Serving:
Indiana, Michigan,
Ohio

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*SEIMC — Special Education Instructional Materials Center
RMC — Regional Materials Center
NCEMMH — National Center on Educational Media & Materials for the Handicapped
RRC — Regional Resources Center

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Robert Ridgway, Project Director
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University of Kansas
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Robert Starrett, Project Director
A. Edward Blackhurst, Principal Investigator
Special Education Instructional Materials Center
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Special Education Department
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Phone: 606 258-4921

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Gloria Calovini, Project Director
Special Education Instructional Materials Center
Office of Superintendent of Public Instruction
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Phone: 518 474-6939

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Dr. Judy Buffmire, Director
Rocky Mountain Regional Resource Center
University of Utah
2363 Foothill Drive, Suite G
Salt Lake City, Utah 84109
Phone: 801 581-6281

OEC-0-72-4478 PR 222550
John Belland, Director
National Center on Educational Media and Materials
for the Handicapped
Ohio State University
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Phone: 614 422-7596

Serving:
Nationwide

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Mr. Elwood L. Bland, Project Officer, SEIMC/RRC (for Auburn University SEIMC, Iowa RRC, City University of New York RRC, Pennsylvania Special Education Bureau RRC).

Ms. Marie Roane, Project Officer, RRC (for New Mexico State University RRC, Utah RRC, University of Oregon RRC).

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U.S. Office of Education
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Northwest Corner, 7th and D Streets, S.W.
Washington, D.C.

TABLE I

MEDIA SERVICES AND TELECOMMUNICATIONS/LEARNING RESOURCES BRANCHES
PROJECTS IN DEAFNESS
DIVISION OF MEDIA SERVICES
BUREAU OF EDUCATION FOR THE HANDICAPPED,
U.S. OFFICE OF EDUCATION

Contract Number Contract Period(s) Total Amount	Project Title and Final Report	Sponsoring Institution and Project Director	Description of Research
OEC-0-73-0608 11/10/72-8/31/74 $549,257 Continuation and Amendment	Project LIFE (Language Instruction to Facilitate Education)	National Education Association, Washington, D.C. 20016	A continuation project to develop better methods and facilities for teaching language to deaf children—including production of programmed film-strips and special books and picture dictionaries.
	"Project LIFE (Language Instruction to Facilitate Education)"	Glenn Pfau, Ph.D.	
OEC-0-71-4673 3/1/73-4/30/74 $120,000 Continuation	A Multiphase Project to Facilitate Vocational Exploration Via Media	St Paul Technical Vocational Institute, St. Paul, Minnesota 55102	A project to develop and promote relevant vocational educational media that will lead to adequate career selection, career training, and job opportunities for deaf and other handicapped persons.
		Robert R. Lauritsen	

Contract Number Contract Period(s) Total Amount	Project Title and Final Report	Sponsoring Institution and Project Director	Description of Research
OEC-0-71-4674 2/1/73-8/31/74 $106,089 Continuation	Develop and Evaluate a Training Film Series in Total Communication to Facilitate Language Growth, Communication and Child-Parent Interaction in Young Deaf Children	Western Maryland College, Westminster, Maryland 21157 McCay Vernon, Ph.D.	A program to produce a series of films for use by pre-school deaf children, their families, and professionals. The films are to facilitate language growth, communication, and basic education.
OEC-0-71-4670 7/15/73-7/14/74 $149,734 Continuation	Development of Computerized Speech Training Aids for the Deaf "Speech Training Aids for the Deaf"	Bolt Beranek and Newman, Inc., Cambridge, Mass. 02138 Ray Nickerson, Ph.D.	The development of a cost-effective, computer based system of non-auditory aids for speech training for the deaf.
OEC-0-9-423617-4357 7/1/73-6/30/74 $230,000 Continuation—5th year	Computer Based Project for the Evaluation of Media for the Handicapped	Syracuse City Schools Dept. of Special Ed., Prescott School, Syracuse, New York 13202 Bernice M. Kipfer Charles V. Mead	A project to develop and test a functional system for evaluating instructional media for the handicapped. Information is transmitted through the IMC/RMC Network. When fully developed, the system will be essentially neutral to the specific material evaluated.

Contract Number Contract Number Contract Period(s) Total Amount	Project Title and Final Report	Sponsoring Institution and Project Director	Description of Research
OEC-0-72-0398 5/1/74-1/31/75 $97,068 Amendment	Captioned Network Newscast	WGBH Educational Foundation, Boston, Massachusetts 02134 Philip Collyer	This amendment covers the captioning and distribution of 37 one-half hour segments of ZOOM series.
7/1/73-11/29/74 $274,633 Amendment	Captioned Network Newscast	WGBH Educational Foundation, Boston, Massachusetts 02134	This is for the recording, videotape, captioning and rebroadcasting of captioned network newscast, including updating and enriching of broadcasts with up to the minute and pertinent background data thus providing hearing impaired viewers with specifically designed news services.
OEC-0-73-1188 1/15/73-10/31/74 $301,235 New	Captioning for the Deaf	Public Broadcasting Service 485 L'Enfant Plaza West. S.W. Washingtonton, D.C. 20024 John E. Ball	A PBS project to conduct a parallel evaluation of the National Bureau of Standards and Hazeltine Research, Inc. captioning techniques and at the conclusion of the experiment period submit a technical report to HEW describing the conclusions of the evaluation. PBS will also conduct related audience research.

TABLE II

TRAINING, ACQUISITION AND DISTRIBUTION MEDIA SERVICES AND CAPTIONED FILMS, DIVISION OF EDUCATIONAL SERVICES, BUREAU OF EDUCATION FOR THE HANDICAPPED OFFICE OF EDUCATION

Contract Number Program Title Duration Annual Cost	Sponsoring Institution and Program Director	Description and Type of Program	Description of Trainees Enrolled
OEC-0-073-0534 Northeast Regional Media Center 9/1/73-8/31/74 $280,374	University of Massachusetts Amherst, Massachusetts 01002 Raymond Wyman, Ph.D.	Conduct training, research, and development in the area of educational and related media for improvement of instruction of the deaf; develop and utilize media in professional preparation of teachers, supervisors and others in the field; establish and expand needed media programs and services in 14-state area (in-service training programs, publications and consultations).	Teachers of the Deaf
4/1/73-3/31/74 $126,232	University of Massachusetts Amherst, Massachusetts 01002 Raymond Wyman, Ph.D.	Field test of electronic terminals for the deaf	
OEC-0-73-0428 Midwest Regional Media Center 9/1/73-8/31/74 $310,200	University of Nebraska Lincoln, Nebraska 68508 Robert E. Stepp, Ph.D.	Design and develop instructional media for teaching the deaf; plan and conduct a symposium on research and utilization of educational media; plan and conduct an educa-	Teachers of the Deaf

Contract Number Program Title Duration Annual Cost	Sponsoring Institution and Program Director	Description of Program	Description of Trainees Enrolled
		tional media institute; establish an area program for schools for the deaf located within Midwest region; provide the services of consultants and research people to schools for the deaf within the region.	
OEC-0-73-2869 5/1/73-10/31/74 $6,805	University of Nebraska Lincoln, Nebraska 68508 Robert E. Stepp, Ph.D.	Supply service of captioned films	
OEC-0-73-0417 Southern Regional Media Center 9/1/73-8/31/74 $311,850	The University of Tennessee Knoxville, Tennessee 37916 William Jackson, Ph.D.	Conduct training, research and development in the area of educational and related media for improvement of instruction of the deaf;develop and utilize media in professional preparation of teachers, supervisors, and others in the field; establish and expand needed media programs and services in 12-state area (in-service training programs, publications and consultants).	Teachers of the Deaf
OEC-0-73-0447 Southwest Regional Media Center 9/1/73-8/31/74 $315,000	New Mexico Foundation, Inc. Las Cruces, New Mexico 88001 Hubert Summers	Train in utilization of instructional media in institutions involved in training teachers of the deaf; conduct workshops and demonstrations of media techniques; plan for future activities in curriculum service and instructional systems.	Teachers of the Deaf

OEC-0-71-4358 Educational Theatre Program for the Deaf 1/1/74-12/31/75 $354,048	Eugene O'Neill Memorial Theatre Foundation, Inc. Waterford, Conn. 06385 David Hayes	Provide intensive training in theatre arts to qualified deaf applicants in hopes of promoting drama as an educational and creative force in schools and in other programs for the deaf throughout the nation.	Deaf Persons
OEC-0-73-6220 Screening and Evaluation of General Interest Films for Captioning 6/1/74-5/31/75 $8,500	National Association of the Deaf Silver Spring, Maryland 20910 Frederick Schreiber	A continuation project to assist MSCF in screening and evaluating general interest films for captioning and use in the program libraries of captioned films for the deaf.	
General Interest Films Since 10/60 Approx. $1,000,000	Various major film producers	An ongoing program to acquire and caption various general interest films for use by deaf audiences.	
OEC-0-8-00016-0016 Educational Media Distribution Center 9/1/73-8/31/74 $628,309	Conference of Executives of American Schools for the Deaf 5034 Wisconsin Avenue, N.W. Howard M. Quigley, Litt.D.	The EMDC is the nerve center of all distribution and dissemination activities to schools and classes for the deaf and the adult deaf population. It coordinates activities of the general interest film library and the 60 educational films depositories, including screening and registration of captioned film users. It serves as a central source of information in regard to educational media and materials to the field. EMDC also is responsible for the management of workshops for educational film selection and for educational film caption writing and accompanying lesson guides.	

DEMOGRAPHIC DATA AND STATUS OF SERVICES FOR DEAF-BLIND CHILDREN IN THE UNITED STATES

By Robert Dantona
Coordinator, Centers and Services for Deaf-Blind Children
Bureau of Education for the Handicapped

Geographical Distribution of Deaf-Blind Children

The Regional Centers for Deaf-Blind Children, since their inception in June of 1969, have located some 4,414 deaf-blind children. Deaf-Blind children are defined as:

> "... *children who have auditory and visual handicaps, the combination of which causes such severe communication and other developmental and educational problems that they cannot properly be accommodated in special education programs solely for the hearing handicapped child or for the visually-handicapped child.*"

Deaf-blind children have been located in all fifty states including Guam, the Trust Territories, Puerto Rico, and the Virgin Islands.

Program Enrollment

Of the 4,414 children located, some 3,461 are receiving services through the more than 200 programs or projects funded under the Regional Centers (See Table 1). These services include the following: full-time educational programs (residential or day); part-time educational programs (residential or day, including intensive respite care, educational assessment, and summer camp); and, diagnostic and evaluation services.

There are some 947 deaf-blind children not enrolled in any program at this time. This includes the 318 deaf-blind children in the California State Hospital programs.

Age Distribution

The age distribution of 4,096 deaf-blind children is as follows:

60	children ages	0- 2
415	children ages	3- 5
803	children ages	6- 8
1438	Children ages	9-11
413	children ages	12-14
439	children ages	15-17
315	children ages	18-21
123	children ages	21+

90	children ages	Unknown Birth Date
4096	children ages	Total
318	children ages	In State Hospital (At this time ages unreported)
4414		

See Table 2 for age distribution and children served by regions. Table 3 shows the current service pattern on a regional basis and the estimated numbers of deaf-blind children served during program year 1973-74.

Table 4 is a supplementary fact sheet which projects the estimated number of deaf-blind children to be served through fiscal year 1975 including appropriated budgets. And, Table 5 shows the approved funding by Regional Centers from fiscal year 1969-fiscal year 1973.

Accomplishments for Fiscal Year 1973

In school year 1973-74 the Deaf-Blind Program directed its efforts toward expanding its services through eleven Regional Centers by providing:

Full-time educational services to 1,903 deaf-blind children enrolled in school year programs.

Diagnostic and educational assessment services to 1,145 deaf-blind children and their families (includes estimated 500 children in Home Correspondence Course).

Short term and part-time educational services to 784 deaf-blind children (e.g. summer school, intensive interim care, and programs providing more than thirty hours/year service but not more than three days per week/year).

Counseling services for 3,000 parents were provided and a parent Home Correspondence Kit was field tested.

In-Service Training for approximately 1,200 teachers, aides, and parents.

Expected Accomplishments for Fiscal Year 1974

Utilizing fiscal year 1974 funds ($14,055,000) during the school year 1974-75, the Deaf-Blind Centers Program will direct its efforts in ten Centers toward expanding its services to provide:

Full-time educational services for an additional 700 deaf-blind children increasing the total from 1,900 to 2,600 children enrolled in school year programs (approximate cost: $4,600 per child).

Diagnostic and educational assessment services for 700 additional (new) children.

Short-term and part-time educational services for an additional 200 deaf-blind children making the total 700 children enrolled in part-time school year programs. Children are phased out of this category into full-time programs.

In-service training for 3,000 teachers, aides, and parents.

Counseling services for 3,000 parents will be provided and a Home Correspondence Kit for parents of preschool and elementary school age deaf-blind children made available to 2,000 families.

A joint National Registry of Deaf-Blind Children will be adopted in cooperation with the National Center for Deaf-Blind Youths and Adults.

Technical Assistance program efforts will be geared to development of state by state plans for individual child services support. Activity will concentrate on twenty-five states having over ninety percent of the deaf-blind population.

Deinstitutionalization. A demonstration model for selected Regional Centers (2) will be developed for removing deaf-blind children (ages 0-21) from State Hospitals for the Retarded by identifying and providing appropriate alternative placements for them.

Vocational Educational Needs: including identification, planning and implementation of pilot projects in selected regions for multi-handicapped children and children in residential institutions, and those being deinstitutionalized.

Series of Workshops will be conducted for medical and clinical personnel (pediatricians, ophthalmologists, optometrists, otolaryngologists, audiologists, psychologists, speech therapists, etc.).

A national program of temporary assistance will be conducted for parents of unserved children through a home correspondence information and assistance program. Home correspondence will be followed by visits of staff from the appropriate Regional Center.

Plans for Fiscal Year 1975 (Budget Appropriations — $12,000,000)

In order to maintain those diagnostic, prescriptive and educational services to deaf-blind children in school year 1975-76, as was provided in 1974-75, the Deaf-Blind Centers program will provide the following:

Full-time educational services for 2,600 children.

Short-term and part-time educational services will be held level at approximately 700 children and possibly decrease as more children are phased out of this category into full-time educational service programs under local, state, and federal funds

Diagnostic and educational assessment services to some 700 new children.

Training for 3,000 professionals and parents.

Counseling services for 3,000 parents and a parent Home Correspondence Course will be distributed to an additional 1,000 families.

A third-party evaluation effort will be undertaken.

Technical assistance to all deaf-blind projects funded under the Regional Centers.

The National Register of all deaf-blind persons will be maintained in cooperation with the National Center for Deaf-Blind Youths and Adults.

The deinstitutionalization effort will be continued for selected deaf-blind children in State Hospitals for the Retarded.

Support services to each deaf-blind project will be continued by the Regional Centers. These services include stimulation, implementation, and coordination of new service delivery systems; research; casefinding and screening; technical assistance; and inservice training.

TABLE 1

CENTERS AND SERVICES FOR DEAF-BLIND CHILDREN

NUMBER OF DEAF-BLIND CHILDREN IN SERVICE PROGRAMS

NEW ENGLAND REGIONAL CENTER	TOTAL	NO SERVICES	IN PROGRAM
CONNECTICUT	53	0	53
MAINE	8	0	8
*MASSACHUSETTS	94	17	77
NEW HAMPSHIRE	11	0	11
RHODE ISLAND	17	1	16
VERMONT	7	0	7
TOTAL	198	18(9%)	172 (91%)

*8 children not shown in their home state and are residents at Perkins

MID-ATLANTIC [NORTH AND CARIBBEAN]	TOTAL	NO SERVICES	IN PROGRAM
DELAWARE	8	3	5
NEW JERSEY	129	6	123
NEW YORK	291	23	268
PENNSYLVANIA	129	15	114
PUERTO RICO	46	0	46
VIRGIN ISLANDS	5	0	5
TOTAL	608	47 (7.7%)	561 (92.3%)

MID-ATLANTIC REGIONAL CENTER	TOTAL	NO SERVICES	IN PROGRAM
DISTRICT OF COLUMBIA	35	4	31
MARYLAND	85	18	67
NORTH CAROLINA	108	31	77
SOUTH CAROLINA	57	7	50
VIRGINIA	132	104	28
WEST VIRGINIA	19	6	13
TOTAL	436	170 (39%)	260 (61%)

SOUTHEASTERN REGIONAL CENTER	TOTAL	NO SERVICES	IN PROGRAM
ALABAMA	36	5	31
FLORIDA	89	12	77
GEORGIA	95	39	56
KENTUCKY	25	5	20
MISSISSIPPI	77	19	58
TENNESSEE	62	16	46
TOTAL	384	96 (25%)	288 (75%)

MIDWEST REGIONAL CENTER	TOTAL	NO SERVICES	IN PROGRAM
ILLINOIS	135	10	125
INDIANA	40	0	40
MICHIGAN	230	14	216
OHIO	36	0	36
WISCONSIN	25	0	25
TOTAL	466	24 (5.2%)	442 (94%)

CENTRAL REGIONAL CENTER	TOTAL	NO SERVICES	IN PROGRAM
MINNESOTA	80	21	59
IOWA	69	7	62
MISSOURI	83	33	50
NORTH DAKOTA	16	2	14
SOUTH DAKOTA	54	12	42
TOTAL	302	75 (25%)	227 (75%)

SOUTH CENTRAL REGIONAL CENTER	TOTAL	NO SERVICES	IN PROGRAM
ARKANSAS	49	4	45
LOUISIANA	143	27	116
OKLAHOMA	106	14	92
TEXAS	394	63	331
TOTAL	692	108 (15.6%)	584 (84%)

MOUNTAIN PLAINS REGIONAL CENTER	TOTAL	NO SERVICES	IN PROGRAM
NEW MEXICO	80	0	80
WYOMING	18	0	18
COLORADO	76	2	74
KANSAS	69	0	69
UTAH	40	5	35
NEBRASKA	47	3	44
TOTAL	330	10 (3%)	320 (97%)

NORTHWEST REGIONAL CENTER	TOTAL	NO SERVICES	IN PROGRAM
ALASKA	28	8	20
IDAHO	18	1	17
MONTANA	35	3	32
OREGON	65	9	56
WASHINGTON	108	40	68
TOTAL	254	61 (24%)	193 (76%)

SOUTHWESTERN REGIONAL CENTER	TOTAL	NO SERVICES	IN PROGRAM
CALIFORNIA	686	337	349
ARIZONA	39	0	39
GUAM	3	0	3
HAWAII	15	0	15
NEVADA	8	0	8
TRUST TERRITORIES	1	1	0
TOTAL	752	338 (4.49%)	414 (56%)

	TOTAL	NO SERVICES	IN PROGRAM
New England Regional Center	190	18	172
Mid-Atlantic [North & Caribbean]	608	47	561
Mid-Atlantic Regional Center	436	170	260
Southeastern Regional Center	384	96	288
Midwest Regional Center	466	24	442
Central Regional Center	302	75	227
South Central Regional Center	692	108	584
Mountain Plains Regional Center	330	10	320
Northwest Regional Center	254	61	193
Southwestern Regional Center	752	338	414
TOTAL	4414	947 (21%)	3461 (79%)

	MASS.		N.Y.		N.C.		ALA.		MICH.		MINN.		TEXAS		COLO.		WASH.		CAL.		Sub-Totals		Totals
REGION:	1		2		3		4		5		6		7		8		9		10				
AGE	No Services	In Program	No Services	In Program	No Services	In Program	No Services	In Program	No Services	In Program	No Services	In Program	No Services	In Program	No Services	In Program	No Services	In Program	No Services	In Program	No Services	In Program	
0 – 2 Years	1	0	0	2	1	0		1	0	4	5	8	2	7	0	15	2	3	0	9	11	49	60
3 – 5 Years	4	7	3	39	10	21		31	3	38	11	16	10	72	1	56	8	27	4	54	54	361	415
6 – 8 Years	4	28	7	89	28	50		67	3	85	10	53	21	118	1	69	15	48	3	104	92	711	803
9 – 11 Years	0	85	19	272	44	102		171	5	148	15	61	32	170	2	80	5	56	5	166	127	1311	1438
12 – 14 Years	0	18	2	48	20	35		27	0	34	9	27	13	54	2	47	7	28	1	41	54	359	413
15 – 17 Years	2	24	7	47	25	31		44	2	43	9	25	11	81	1	32	[illegible]	20	3	28	64	375	439
18 – 21 Years	6	14	6	27	17	23		25	3	40	7	25	12	54	0	16	17	7	[illegible]	12	72	243	315
21+ Years	1	4	2	22	4	4		9	0	39	9	12	2	6	0	2	3	4	0	0	21	102	123
Unknown B.D.	0	0	1	15		0		9		11	0	0	5	14	3	3	0	0	0	0	38	52	90
Sub Totals	18	180	47	561	170	266		384	24	442	75	227	108	576	10	320	61	193	20	414	533	3,563	4,096
Totals	198		608		436		384		466		302		684		330		254		434		4,096		

TABLE 2–AGE DISTRIBUTION OF DEAF–BLIND CHILDREN & NUMBER OF CHILDREN SERVED BY REGIONS

TABLE 3

CENTERS AND SERVICES FOR DEAF-BLIND CHILDREN

Current Service Pattern:
Funds and Estimated Numbers of Deaf-Blind Children Served

FY 1973 $10,000,000 PROGRAM YEAR 1973-74

Region	Title VI-C $000	Total Served	Full-time School Year Res	Full-time School Year Day	Part-time Short-Term Res	Part-time Short-Term Day	Less Than 30 hrs/yr
Alabama	875	499	131	53	145	80	90
California	800	697	79	18	50	0	550
Colorado	1,302	308	117	40	30	21	100
Mass.	875	184	167	17	0	0	0
Michigan	979	379	95	76	15	0	193
Minn.	535	274	144	20	0	110	0
New York	1,478	499	165	87	66	56	125
N. C.	849	250	139	12	8	62	29
Texas (Callier)	1,133	256	94	74	0	30	58
Wash.	847	196	128	67	0	1	0
Texas Ed. Agency	327	290	67	113	0	110	0
TOTAL	$10,000	3,832	1,326	577	314	470	1,145
		3,832	1,903		784	1,145	

TABLE 4

SUPPLEMENTARY FACT SHEET
Deaf-Blind Centers

CENTERS & SERVICES FOR DEAF-BLIND CHILDREN

Fiscal Year	**1972**	**1973**	**1974**	**1975**
Program Year	**1972-1973**	**1973-74**	**1974-75**	**1975-76**
Appropriation	**$7,500,000**	**$15,795,000**	**$14,055,000**	**$12,000,000**
Centers Developed	10	11*	10	10
Full-Time Educational Services	1,273	1,903	2,600	2,600
Short-term, part-time, education services (summer school, interim intensive care, assessment, and programs providing more than 30 hrs/year service but not more than 3 days/wk)	431	784	700	700
Diagnosis and Evaluation (Less than 30 hrs. per yr.)	642	1,145	700	700
Parent Counseling	1,800	3,000	3,000	3,000
Inservice Training	400	1,200	3,000	3,000
No. of D-B Children in U.S. as of 3/73	5,064 (est.)			

Location of the Ten Deaf-Blind Centers

1. Telladega, Alabama
2. Sacramento, California
3. Denver, Colorado
4. Watertown, Massachusetts
5. Lansing, Michigan
*6. St. Paul, Minnesota (not approved for funding in 1974-75)
7. Bronx, New York
8. Raleigh, North Carolina
9. Dallas, Texas (Regional)
10. Seattle, Washington
11. Austin, Texas (State)

TABLE 5

TOTAL GRANTS APPROVED FOR REGIONAL DEAF-BLIND CENTERS FY 1969-74

REGIONAL CENTER	(PY 1969-70) FY 1969	(PY 1970-71) FY 1970	(PY 1971-72) FY 1971	(PY 1972-73) FY 1972	(PY 1973-74) FY 1973	(PY 1974-75 FY 1974
ALABAMA	$150,250	$202,000	$300,000	$795,000	$875,000	$1,122,363
CALIFORNIA	189,000	337,760	677.000	975,000	800,000	2,005,000
COLORADO	36,260	250,000	450,000	800,000	1,302,000	2,019,228
MASSACHUSETTS	177,525	279,855	410,415	700,000	875,000	1,093,750
MICHIGAN	50,000	109,736	437,000	875,000	979,000	1,585,955
MINNESOTA	——	50,000	249,998	350,000	535,000	——
NEW YORK	189,000	280,000	460,000	830,000	1,478,000	2,050,000
NORTH CAROLINA	——	50,000	275,000	550,000	849,000	1,225,000
TEXAS (REGIONAL)	51,039	290,000	690,587	975,000	1,132,726	1,380,697
WASHINGTON	156,926	150,649	450,000	650,000	847,000	1,155,548
TEXAS ED. AGENCY	——	——	——	——	327,274	417,459
TOTAL	$1,000,000	$2,000,000	$4,500,000	$7,500,000	$10,000,000	$14,055,000

BUREAU OF COMMUNITY HEALTH SERVICES
MATERNAL AND CHILD HEALTH PROGRAM
HEALTH SERVICES ADMINISTRATION

The Bureau of Community Health Services administers funds appropriated under Title V of the Social Security Act for Maternal and Child Health and Crippled Children's Services. Some of the funds, available in the form of formula grants to State Maternal and Child Health Service and Crippled Children's Service agencies, are used to provide services for children with hearing and speech impairments.

Other programs administered under Title V of the Social Security Act also help with hearing and speech services for mothers and children. These include special project grants for the comprehensive health care of children and youth, for maternity and infant care, and for training professional personnel and conducting research related to the health of mothers and children.

State Services

Services provided in a hearing and speech program in a State Maternal and Child Health Service or Crippled Children's Service program include medical and surgical treatment, hospitalization and after-care, audiology and speech pathology services, nursing, social work and psychology services, and other health services as required, including provision of hearing aids.

While services for hearing and speech impairments are available throughout the nation, their nature and scope vary among the states and among communities within the states. The variation is principally in the extent to which the services are available, rather than in their nature.

The total costs for hearing and speech programs under the formula grants to Maternal and Child Health Service and Crippled Children's Service agencies are not now identified. Some of those related to a hearing and speech program are basically the costs of overall preventive health services and health care provided to children. For example, the program for immunization is significant in the prevention of diseases leading to sensorineural hearing impairments. Similarly, medical treatment of upper respiratory infections and of acute otitis media is a significant part of preventing conductive hearing impairments. Just as the provision of early health care is an essential part of a hearing and speech program, so hearing and speech services are essential to a health delivery system. The health services that are required for an effective hearing and speech program include a wide range of disciplines involved in casefinding, assessment, medical and non-medical treatment and therapy, counselling, and habilitation.

In most states, the Maternal and Child Health Service and Crippled Children's Service agencies employ professionally qualified speech pathologists or audiologists to develop and deliver a program for hearing and speech services. In some states, both the Maternal and Child Health Service and Crippled Children's Service agencies have employed supervisory personnel in speech pathology and audiology. Treatment services also are purchased from existing hearing and speech facilities, and from professional personnel in hospitals, rehabilitation centers, and other centers.

During the last several years, the State Maternal and Child Health Service agencies have reported testing the hearing of over 5,000,000 children each year. Most of the hearing testing programs are directed to school-age children; although some states have included those of preschool age. The number of children found by these hearing tests to need medical and other help is approximately 2 to 3 percent of the total. Less than 1 percent are found to be severely handicapped. Each year the State Crippled Children's Service annual reports document provision of services to more than 50,000 children with hearing impairments.

Project Grants

Hearing and speech services are an integral part of Maternal and Child Health Service project grants for comprehensive health services for children and youth who live in poverty areas. The projects provide screening, diagnostic, preventive, corrective and follow-up services. Over 100 hearing and speech staff are currently employed in these projects to provide speech pathology and audiology services.

Hearing and speech services are also included in many of the demonstration projects under the formula grants program. A few of these are: development of multidisciplinary programs to aid children with cleft lips and cleft palates; comprehensive long-term management of children with multiple handicaps; diagnostic clinic for children with learning disabilities.

Special projects specific to the hearing and speech field include grants to (1) the Colorado State Department of Health for demonstrations related to hearing conservation; (2) the Iowa Crippled Children's Service to explore developments in providing hearing and speech services to mentally retarded children; (3) the Alaska Department of Health to develop a joint program in audiology with the Indian Health Service.

Training Grants

Discipline Oriented Programs. The training program has the objective of supporting the training of hearing and speech specialists who provide services to the State Maternal and Child Health Service and Crippled Children's Service programs.

Grants for training in speech pathology and audiology continue at the Johns Hopkins University, University of Iowa, University of Oklahoma Medical School, University of Kansas Medical School, and the New York University Medical School.

When the Children and Youth Projects were begun in 1966, the Maternal and Child Health Service recognized the need to train hearing and speech specialists to work effectively with children in areas with predominantly black populations. A cooperative training program in hearing and speech was finally established and funded in 1970 at Vanderbilt University and at Tennessee State University, a historically black institution. This unique approach to hearing and speech training is expected to make use of the best of both training programs in speech pathology and audiology. (Table 1).

Multidiscipline-oriented, University-affiliated Training Centers. Twenty university-affiliated training centers receive support from the Maternal and Child Health

Service to train students from over 15 health professions to work together to care for handicapped children. Each program has developed a hearing and speech component with varying numbers of professional staff. Most of the centers receive financial support for traineeships in speech pathology and audiology. (Table 2)

Table 2. UNIVERSITY-AFFILIATED TRAINING CENTER PROGRAMS

Program Title and Grantee

University-Affiliated Training Program in Mental Retardation
John F. Kennedy Institute
Baltimore, Maryland

Mental Retardation Training
University of Oregon Medical School

University-Affiliated Retardation Center
New York Medical College

Mental Retardation Training-Key Personnel
Ohio State University Hospital

Mental Retardation Training
University of Michigan

Mental Retardation Training Program
Indiana University Medical Center

Child Development Center and Interdisciplinary Training Facility
Georgetown University Hospital

Comprehensive Interdisciplinary Training
John F. Kennedy Child Development Center
University of Colorado

The Neuropsychiatric Institute
UCLA Center for the Health Sciences

Multidisciplinary Training for Mental Retardation Personnel in a Pediatric Center
Children's Hospital Medical Center
Boston, Massachusetts

Center for Developmental and Learning Disorders
University of Alabama Medical Center

Professional Training in Mental Retardation
Children's Hospital of Los Angeles

University-Affiliated Program for the Mentally Retarded
University of Cincinnati

University-Affiliated Training in Mental Retardation
Walter E. Fernald State School
Massachusetts General Hospital, Waverly, Massachusetts

University-Affiliated Facility
University of Kansas Medical Center

Child Development Center
University of Miami

Division for Disorders of Development and Learning
University of North Carolina

Child Development Center
University of Tennessee, Memphis, Tennessee

Child Development and Mental Retardation Center
University of Washington

University-Affiliated Facility
University of Wisconsin

Research

Grant support is given to research activities which show promise of substantial contribution to the advancement of maternal and child health service and crippled children's service. A number of the projects are related to the prevention of deafness and to a variety of health services to children who are or who may become deaf. The projects listed in Table 3 represent only those concerned specifically with the problem of deafness.

International Research

The international research activities are a part of the Health Services Administration's effort to conduct health-related research in various countries. This work is supported by the special foreign currency accruing to the United States as the result of the sale of surplus agricultural products (Public Law 480 funds). To be funded, the research must be of benefit to the United States as well as to the cooperating foreign country. (Table 4)

Table 1. TRAINING PROGRAMS

Program Title	Sponsoring Institution and Program Director	Type of Training	Kind of Students Enrolled
Training in Audiology	Johns Hopkins University Medical School, Baltimore, Maryland William Hardy, Ph.D.	Audiologists and Speech Pathologists	Master's and Ph.D. level
Audiology and Speech Pathology Training	University of Iowa, Iowa City, Iowa Kenneth H. Moll, Ph.D.	Audiologists and Speech Pathologists	Master's and Ph.D. level
Training in Communicative Disorders	University of Oklahoma Medical School, Norman, Oklahoma John Keys, Ph.D.	Audiologists Pediatricians Otolaryngologists Speech Pathologists	Master's and Ph.D. level
Audiology and Speech Pathology	Vanderbilt University, Bill Wilkerson Center Nashville, Tennessee Freeman McConnell, Ph.D.	Audiologists and Speech Pathologists	Master's level
Pediatric Audiology	New York University, New York, New York John Daly, M.D.	Audiologists and Speech Pathologists	Post M.A. level

Table 3. RESEARCH GRANTS IN THE AREA OF DEAFNESS

Grant Number Starting Date Duration	Project Title and Final Report	Sponsoring Institution and Project Director	Description of Research
H-331 1970 5 years	Family Interaction, Language, and Deafness	Langley Porter Neuropsychiatric Institute, San Francisco, California Hilde S. Schlesinger, M.D.	To describe the development of reciprocal parent—child communication in families with a deaf child.
MC-R-420022 1971 3 years	Auditory and Visual Perceptual Deficit and Neonatal Jaundice	Pennsylvania Hospital Philadelphia, Pa. Lois Johnson, M.D.	To develop a modification of the currently practiced program for the management of neonatal jaundice which will significantly reduce the incidence of central auditory and visual motor perceptual deficit.
MC- R-909957 1971 3 years	Automated Language Tests and Enrichment for Deaf Infants	University of Hartford Connecticut Bernard Z. Friedlander, Ph.D.	To study the responses of the very young children to visual and acoustic stimuli.
MC-R-360031 1970 4 years	Early Diagnosis of Hearing Loss with Evoked Response	Albert Einstein College of Medicine, Bronx, N.Y. Isabelle Rapin, M.D.	To determine the parameters and effectiveness of auditory evoked responses.

Table 4. INTERNATIONAL RESEARCH PROJECTS

Grant Number	Title	Grant Period	Cost	Principal Investigator
SRS/CB Israel-14	Deafness and Deafmutism in Endemic Goiter Areas	5/65-6/68	$ 19,433	Dr. David Barzilai, Director, Medical Dept. & Endocrine Unit Rambam Government Hospital, Haifa, Israel
SRS/CB Poland-3	Auditory Impairment of Children in Poland	4/64-10/68	80,227	Dr. Danuta Borkowska-Gaertig Research Institute for Mother and Child, Warsaw, Poland
05-479-2	Demonstration and Study of Services for Children with Severe Hearing Impairment	2/69-12/73	178,950	Dr. Danuta Borkowska-Gaertig, Research Institute for Mother and Child, Warsaw, Poland
06-480-2	Evaluation of Methods for Detecting Hearing Impairment in Infancy and Early Childhood	9/66-7/73	193,948	Dr. Moshe Feinmesser, Hadassah Medical Center, Jerusalem, Israel
06-482-2	Automatic Screening of Newborns for Deafness	4/71-4/73	17,617	Dr. M.M. Altman, Rambam Government Hospital, Haifa, Israel
02-481-2	Early Identification of Hearing Impairment	4/71-3/75	128,765	Dr. Dragoljub Vukotic, Center for Rehabilitation of the Deaf, Belgrade, Yugoslavia
06-475-2	Cytogentic and Dermatoglyphic Aspects of Inherited Deafness in Children	1/66-12/69	20,731	Dr. Simon Winter, Pediatric Department, Rothschild Hospital, Haifa, Israel

NATIONAL INSTITUTE OF NEUROLOGICAL DISEASES AND STROKE

Data furnished by Dr. Eldon L. Eagles, Deputy Director

PURPOSE, ACTIVITIES AND LEGISLATIVE AUTHORIZATION

The National Institute of Neurological Diseases and Stroke conducts and fosters research on the causes, prevention, diagnosis and treatment of the neurological and sensory disorders of mankind, and conducts basic research in related scientific disciplines. In fulfilling these responsibilities, the Institute:

(1) Provides leadership, counsel, technical advice and guidance in developing and maintaining a nationwide research and research training effort in the area of its program responsibilities.

(2) Administers a program of grants-in-aid for research to public and private institutions and individuals in fields related to its areas of interest, including research project, program project, and center grants.

(3) Administers a program of training grants and awards to increase the availability of trained professional research manpower in areas related to the program responsibilities of the Institute.

(4) Conducts a diversified program of intramural and collaborative research in its own laboratories, branches, and clinics.

(5) Administers a program of scientific information exchange through which the results of scientific investigators are rapidly disseminated to the scientific community.

NINDS supports research concerned with the cause, development, diagnosis, therapy, and prevention of such disorders as: multiple sclerosis, cerebrovascular diseases, epilepsy, muscular dystrophy, cerebral palsy, mental retardation, encephalitis, stroke, brain tumor, Meniere's syndrome, aphasia, otosclerosis, and other disorders of the nervous system, hearing equilibrium, and speech.

Support is given for basic neuroscience research as well as clinical studies. Areas of basic science support include neuroanatomy, neurochemistry, neuropathology, epidemiology, neuropharmacology, neurophysiology, neuroradiology, sensory physiology, psychology, physics, and related disciplines.

The Institute in all its activities intends to supplement rather than replace support from foundations, private philanthropies, or private health organizations in the scientific fields related to health problems.

On August 15, 1950, President Harry S. Truman signed Public Law 692, 81st Congress, establishing the Institute.

COMMUNICATIVE DISORDERS

Scope

The Communicative Disorders programs of the National Institute of Neurological Diseases and Stroke support and carry out research aimed at improving the diagnosis, treatment, and prevention of diseases and disorders that impair human communication by hearing, speech, and language. The Institute's programs, which combine extramural research and training grants, intramural laboratory research, and directed collaborative clinical and applied research, aim to develop the understanding of the underlying functions of the act of listening, the central neural processing of language, and the expression of ideas through speech. They aim also to learn how specific diseases interfere with those functions and to apply this understanding to the diagnosis, treatment, and prevention of these disorders.

The development of communication skills in profoundly deaf children is being explored and a team is comparing their language and communication behavior to that of hearing children. One major focus is on the deaf child's manual communication skills. Early inspection of the data shows that receiving scores were higher than sending scores.

Efforts are also under way to develop other means of communication for those with severe hearing loss. For those with even minimal residual hearing, the use of hearing aids is proving very beneficial, especially in the child's efforts at acquisition of language. In others, vibrations through the skin may be utilized for hearing. To date, efforts to provide a sensory input directly to the brain, bypassing the ear, have produced only crude noises. Much more must be learned about the neural processes of hearing before a meaningful signal can be introduced into the system.

Research Centers

The Institute is supporting six multidisciplinary research centers where projects covering various aspects of human communications research are being carried out, both in the clinical and laboratory areas. In addition to these research centers, three clinical out-patient centers have been established. A specialized information center for Hearing, Speech, and Disorders of Human Communication has also been established. The research centers are located at:

(1) *University of Chicago* — This center concentrates on the clinical investigation of disorders involving principally hearing and equilibrium. It is supported by various laboratory studies including electrophysiology of the cochlea, factors influencing location of sound in space, bone conduction of sound, eustachian tube function, vestibular nerve pathways in animals, and the response of humans to various postaural tests. This center has aided in developing the temporal bone banks program of the Institute in cooperation with the Deafness Research Foundation. This program is an attempt to further the understanding of hearing impairment by the study of temporal bones of known cases of deafness bequeathed to medical institutions. Also in this institution, a unit of research beds is provided to hospitalize cases of poorly understood deafness and vertigo. The Johns Hopkins University Department of Otolaryngology, the University of California at San Francisco, and Baylor University at Houston, Texas have also established bone bank centers.

(2) *Central Institute for the Deaf* — The center at the Central Institute for the Deaf, St. Louis, carries on studies of normal auditory function including par-

alleled studies of communication by vision, touch, and vibration. Other studies include disorders of auditory communication including loss or impairment of hearing; disorders of auditory perception; failure to attach meaning to sounds, and difficulties in understanding, in formulating, and in producing spoken language. Work of the research department in this center is divided into four areas represented by the laboratories of physiology, electroencephalography, psychology, and electrical engineering and physical acoustics.

(3) *Princeton University* — The nature of hearing is the subject of study at Princeton University. This program encompasses the investigation of hearing in all its fundamental aspects including sound conduction in the ear, physiology of the cochlea and the auditory nervous system, overstimulation and protection of the ear, and a comparative study of hearing mechanisms and their functions in various animals and reptiles. Facilities to study hearing in the ultrasonic range have been developed as part of a program to study the evolution of the ear involving hearing in bats, amphibians, reptiles, and several mammals.

(4) *The Kresge Institute*— The Kresge Hearing Research Insitute, University of Michigan at Ann Arbor, Michigan, is working on causes of deafness.

(5) *University of Florida* — Scientists at the University of Florida are working on the physics and physiology of voice production, the psychology of speech behavior in children, parent-child communication and first language acquisition, linguistics, and noise pathology.

(6) *University of California* — The University of California at Los Angeles has a Communicative Disorders Clinical Research Center which focuses on vestibular research with special emphasis on dizziness.

In addition to these centers, the Institute's cerebrovascular center at Boston University is emphasizing research on aphasia.

The Collaborative Perinatal Project

The Institute's Collaborative Perinatal Project at 14 collaborating institutions for study of 58,000 pregnancies continues to provide a vast store of information regarding causes of communicative disorders. Because of the importance of prenatal and perinatal factors in communicative disorders, the Institute has included evaluation of maternal infection with a variety of virus diseases (particularly rubella), drug action, asphyxia at birth, and metabolic disorders in the collaborative project and in its perinatal research laboratories. A contract will be awarded late in FY 74 for a major analysis of data pertinent to disorders of speech, hearing and language.

The Collaborative Communicative Disorders Program

This Program is continuing its directed research on prescriptive procedures for fitting of hearing aids, and procedures to detect hearing-impairment and middle ear disorders in young children. Cross-modality sensory aids are being studied to determine the extent to which vision and touch may facilitate speech perception by the deaf. The expanding Communicative Disorders program will direct increasing emphasis to the impact of noise on children, the hypothesis of a critical age for language learning, and a new test of speech discrimination in noise which may facilitate fitting of hearing aids; new contracts will be awarded in these areas in June 1974. It is also anticipated that additional research on noise-induced hearing loss will be implemented to achieve better understanding of the relationships between frequency, duration, and intensity of noise exposure and the resulting hearing loss.

Laboratory of Neuro-otolaryngology

NINDS is establishing a new laboratory to focus on the physiology and biochemistry of the acoustic sensory organ of the mammalian cochlea. Techniques from the fields of biochemistry, histology, pharmacology and physiology will be used to investigate the synaptic mechanism of sensory cells and nerve fibers. It is anticipated that this new knowledge will provide an important background for the clinical management of communicative disorders in humans.

Training Programs

Individual fellowships are available for research training of clinical investigators in otolaryngology, audiology, and speech pathology. Institutional fellowship research training awards are available for sensory physiology and biophysics programs.

During fiscal year 1973, NINDS expended $3,241,538 in support of 307 Trainees.

NINDS RESEARCH CONTRACTS—COMMUNICATIVE SCIENCES

Contract No.	Title	Contractor	FY 73 Funds
72-2317-101	Design, Test, and Validate a 3-Phase Screening Program	Stanford Research Institute	$112,452
73-2316-101	Study of Speech Pattern Recognition	Gallaudet College	221,974
72-2318-103	Study Communication Aids for Deaf Infants	Johns Hopkins University	26,714
73-2302-108	Neonatal Serum IGM Study	University of Tennessee	25,870
73-2315-108	Study of High-Risk Pregnancies	University of California, Los Angeles	32,979
68-0006-109	Collection of Speech, Hearing, Language and Other Data for Collaborative Perinatal Project	Children's Hosp., Buffalo	251,079
68-0009-109	" " "	University of Minnesota	188,245
68-0010-109	" " "	University of Oregon	253,018
68-0012-109	" " "	Johns Hopkins University	199,997
68-0014-109	" " "	Children's Hosp. Medical College, Boston	449,571
68-0017-109	" " "	University of Tennessee Memphis	223,141

NATIONAL INSTITUTE OF NEUROLOGICAL DISEASES AND STROKE

NINDS RESEARCH GRANTS – COMMUNICATIVE SCIENCES

Date of Report 03-08-74

Grant Number Project Title	Budget Period	Fiscal Year 1973 Award	No. of Future Years	Sponsoring Institution and Principal Investigator		
R01 NS00682-19 Alterations of Cochlear Potentials	09-01-72 08-31-73	$33,739	1	University of Chicago Chicago Fernandez, Cesar	Illinois	MD
R01 NS01310-17 Psychophysical Characteristics of Hearing Disorders	04-01-73 03-31-74	72,859	0	Northwestern University at Evanston Evanston Carhart, Raymond T.	Illinois	PhD
R01 NS01330-17 Vestibular System Clinical and Experimental Research	05-01-73 04-30-74	52,885	0	University of Chicago Chicago Fernandez, Cesar	Illinois	MD
R01 NS01344-16S1 Physiological Studies of the Auditory System	06-01-73 08-31-73	51,199	0	Massachusetts Eye & Ear Infirmary Boston Kiang, Nelson Y.	Massachusetts	PhD
R01 NS01538-15 Vestibular System	09-01-72 08-31-73	43,291	4	Columbia University New York Carpenter, Malcolm B.	New York	MD
R01 NS01791-15 Metabolism of Bony Otic Capsule	09-01-72 08-31-74	69,316	0	Washington University Saint Louis Marovitz, William F.	Missouri	PhD

Grant Number Project Title	Budget Period[1]		Fiscal Year 1973 Award	No. of Future Years	Sponsoring Institution and Principal Investigator		
R01 NS01832-15 Correlation of Inner Ear Pathology and Function	09-01-72	04-30-74	$37,365	0	New York University New York Daly, John F.	New York	MD
R01 NS02182-14 A Histopathologic Study of Human Temporal Bones	12-01-72	11-30-73	60,790	1	Johns Hopkins University Baltimore Nager, George T.	Maryland	MD
R01 NS02484-13 Measurement of Hearing by Operant Methods	01-01-73	12-31-73	26,546	1	New York University New York Hack, Martin H.	New York	MA
R01 NS02503-14 The Use of Sensory Information by Nonverbal Children	06-01-73	05-31-74	59,148	0	Yeshiva University New York Rapin, Isabelle	New York	MD
R01 NS02662-13 A Study of the Physiology of Speech Breathing	09-01-72	04-30-74	55,049	0	University of Iowa Iowa City Hardy, James C.	Iowa	PhD
R01 NS02974-12 Psychophysics and Hearing	02-01-73	06-30-74	49,145	0	Harvard University, Cambridge Cambridge Lindzey, Gardner	Massachusetts	PhD
P01 NS03358-11S2 Sensory Disease Clinical Research Center	10-01-71	05-31-73	49,659	0	University of Chicago Chicago Naunton, Ralph F.	Illinois	MD

Grant Number Project Title	Budget Period	Fiscal Year 1973 Award	No. of Future Years	Sponsoring Institution and Principal Investigator
P01 NS03358-12 Sensory Disease Clinical Research Center	06-01-73 05-31-74	$328,993	1	University of Chicago Chicago Illinois Naunton, Ralph F. MD
R01 NS03451-12 Random Noise Analysis in Vestibular Evaluation	01-01-73 08-31-74	50,183	0	University of Florida, Gainesville Gainesville Florida Singleton, George T. MD
R01 NS03649-12 Effect on Hearing of Tropical and Nutritional Diseases	10-01-72 09-30-73	15,071	0	Johns Hopkins University Baltimore Maryland Bordley, John E. MD
R01 NS03654-12 Mechanical Properties of the Ear	04-01-73 03-31-74	73,005	0	Columbia University New York New York Tonndorf, Juergen MD
P01 NS03798-11 The Nature of Hearing	10-01-72 09-30-73	206,366	1	Princeton University Princeton New Jersey Wever, Ernest G. PhD
R01 NS03855-11 Surgical Anatomy of the Ear and Temporal Bone	09-01-72 08-31-73	101,154	1	University of Iowa Iowa City Iowa Anson, Barry J. PhD
P01 NS03856-11 Auditory Communication and Its Disorders	10-01-72 09-30-73	477,348	1	Central Institute for the Deaf Saint Louis Missouri Hirsh, Ira J. PhD

Grant Number Project Title	Budget Period		Fiscal Year 1973 Award	No. of Future Years	Sponsoring Institution and Principal Investigator		
R01 NS03932-12 Electron Microscopy of the Inner Ear	04-01-73	03-31-74	$44,566	0	Massachusetts Eye & Ear Infirmary Boston Kimura, Robert S.	Massachusetts	BA
R01 NS03950-11 Sensory Processes	09-01-72	08-31-73	134,743	2	Syracuse University Syracuse Zwislocki, Jozef J.	New York	DSc
R01 NS03995-11 E M and Histochemistry of the Inner Ear	01-01-73	06-30-73	44,418	0	Yale University New Haven Hilding, David A.	Connecticut	MD
R01 NS04003-10 Acoustic Specification of Speech	09-01-72	08-31-73	26,610	2	Royal Institute of Technology Stockholm Lindblom, Bjorn E.	Sweden	PhD
R01 NS04084-10S1 Effect of Sensorineural Lesions on Audition	10-01-72	04-30-73	10,528	0	Henry Ford Hospital Detroit Elliott, Donald N.	Michigan	PhD
R01 NS04105-11 Hearing Loss and the Perception of Complex Sounds	09-01-72	04-30-74	47,856	0	University of Pittsburgh Pittsburgh Bilger, Robert C.	Pennsylvania	PhD
R01 NS04143-11 Cochlear Hair Cell Metabolism and Cochlear Potentials	09-01-72	08-31-74	30,165	0	University of Vermont & St. Agr. Burlington Chamber, Alfred H.	Vermont	PhD

Grant Number Project Title	Budget Period		Fiscal Year 1973 Award	No. of Future Years	Sponsoring Institution and Principal Investigator		
R01 NS04332-10S1 Physiological and Acoustical Studies of Speech	06-01-73	08-31-73	$32,292	0	Massachusetts Institute of Technology Cambridge Stevens, Kenneth N.	Massachusetts	ScD
R01 NS04332-11 Physiological and Acoustical Studies of Speech	06-01-73	08-31-74	181,870	4	Massachusetts Institute of Technology Cambridge Stevens, Kenneth N.	Massachusetts	ScD
R01 NS04403-11 The Determination of Susceptibility to Hearing Loss	12-01-72	11-30-73	57,230	4	University of Minnesota Minneapolis Ward, W. Dixon	Minnesota	PhD
R01 NS04615-10 Fluid Barriers Within the Cochlea	09-01-72	08-31-73	38,979	1	University of Minnesota Minneapolis Duvall, Arndt J., III	Minnesota	MD
R01 NS05016-10 Electro-Anatomy of the Cochlea	01-01-73	12-31-73	69,161	1	University of Florida, Gainesville Gainesville Konishi, Teruzo	Florida	MD
R01 NS05077-10 Latency-Intensity Functions in the Auditory System	01-01-73	12-31-73	59,398	1	C. S. Mott Children's Hospital Ann Arbor Stebbins, William C.	Michigan	PhD
R01 NS05143-09 Neural Encoding of Patterned Acoustic Stimuli	09-01-72	08-31-73	102,866	1	Johns Hopkins University Baltimore Goldstein, Moise H., Jr.	Maryland	ScD

Grant Number Project Title	Budget Period		Fiscal Year 1973 Award	No. of Future Years	Sponsoring Institution and Principal Investigator		
R01 NS05237-10 Physiology of Auditory and Vestibular Systems	05-01-73	04-30-74	$42,974	1	University of Chicago Chicago Goldberg, Jay M.	Illinois	PhD
R01 NS05464-09 Perception of Complex Auditory Stimuli by the Deaf	01-01-73	12-31-73	76,597	0	Gallaudet College Washington Pickett, James M.	District of Columbia	PhD
R01 NS05465-08S1 Neuromuscular Dysfunction in the Larynx and Pharynx	01-01-73	08-31-73	23,019	0	Yale University New Haven Kirchner, John A.	Connecticut	MD
P01 NS05785-08 Causes of Deafness	09-01-72	08-31-73	551,230	4	C. S. Mott Children's Hospital Ann Arbor Lawrence, Merle	Michigan	PhD
R01 NS05873-08 Binaural Hearing	04-01-73	03-31-74	59,583	1	University of California, Los Angeles Los Angeles Dirks, Donald D.	California	PhD
R01 NS05881-08 Otopathology by Light Microscopy	09-01-72	08-31-73	22,772	2	Massachusetts Eye & Ear Infirmary Boston Schuknecht, Harold F.	Massachusetts	MD
R01 NS06115-09 Anatomy of the Auditory System	08-01-72	07-31-73	45,559	3	Harvard University, Boston Boston Morest, Donald K.	Massachusetts	MD

Grant Number Project Title	Budget Period	Fiscal Year 1973 Award	No. of Future Years	Sponsoring Institution and Principal Investigator
R01 NS06200-08 Physiology of Deglutition and Voice in Larynx Analog	09-01-72 04-30-74	$137,846	0	Washington University Saint Louis Missouri Ogura, Joseph H. MD
R01 NS06205-06S1 Tactile Communication of Speech to the Deaf	05-01-73 08-31-73	11,883	0	Queens College New York New York Kirman, Jacob H. PhD
R01 NS06408-08 Experimental Studies in Hereditary Deafness	01-01-73 08-31-74	63,864	0	Vanderbilt University Nashville Tennessee McConnell, Freeman E. PhD
P01 NS06459-08 A Communication Sciences Research Program	02-01-73 01-31-74	229,626	0	University of Florida, Gainesville Gainesville Florida Hollien, Harry PhD
R01 NS06524-07S2 Auditory Responses	06-01-72 12-31-73	20,358	0	University of Miami Miami Florida Peterson, Ernest A. PhD
R01 NS06527-07S1 Studies on Larynx and Pharynx Neurophysiology	06-01-73 08-31-73	6,702	0	University of California, San Francisco San Francisco California Dedo, Herbert H. MD
R01 NS06563-07 Evaluation of Peripheral & Vestibular Mechanisms	09-01-72 08-31-73	54,145	1	Washington University Saint Louis Missouri Stroud, Malcolm H. MD

Grant Number Project Title	Budget Period		Fiscal Year 1973 Award	No. of Future Years	Sponsoring Institution and Principal Investigator		
R01 NS06575-07 Metabolic Processes of the Inner Ear	09-01-72	08-31-73	$111,514	1	Washington University Saint Louis Thalmann, Ruediger	Missouri	MD
R01 NS06606-08 Human Temporal Bone Pathology	06-01-73	05-31-74	94,335	1	University of California, Los Angeles Los Angeles Gussen, Ruth	California	MD
R01 NS06658-08 Central Vestibular Mechanisms	06-01-73	05-31-74	79,613	1	University of California, Los Angeles Los Angeles Markham, Charles H.	California	MD
R01 NS06673-08 Neuroethology	01-01-73	12-31-73	26,650	1	Loyola University at Maywood Maywood Schmidt, Robert S.	Illinois	PhD
R01 NS06730-07 Stimulus-Related DC Potentials of the Cochlea	09-01-72	08-31-73	53,852	0	Northwestern University at Evanston Evanston Dallos, Peter J.	Illinois	PhD
R01 NS06785-07 Central Mechanisms in the Vestibular Apparatus	09-01-72	08-31-73	77,391	2	University of Iowa Iowa City McCabe, Brian F.	Iowa	MD
R01 NS06809-07 Comparative Studies of the Vestibular System	09-01-72	08-31-73	69,700	2	University of Chicago Chicago Hinojosa, Raul	Illinois	MD

Grant Number Project Title	Budget Period		Fiscal Year 1973 Award	No. of Future Years	Sponsoring Institution and Principal Investigator	
R01 NS06940-08 Masking Mechanisms	12-01-72	11-30-73	$73,328	0	University of California, San Diego La Jolla California Green David M.	PhD
R01 NS07005-06 Auditory Function Following Temporal Lobectomy	06-01-73	05-31-74	47,723	0	Louisiana State Univ. MC, New Orleans New Orleans Louisiana Berlin, Charles I.	PhD
R01 NS07237-06S1 Partial Ablation of Vestibular System and Equilibrium	05-01-73	08-31-73	12,620	0	Baylor College of Medicine Houston Texas Igarashi, Makoto	MD
R01 NS07287-05 Space-Time Patterns Evoked by Acoustic Complexes	10-01-72	09-30-73	52,241	1	University of Florida, Gainesville Gainesville Florida Teas, Donald C.	PhD
R01 NS07352-04S1 Studies in Aural Distortion	06-01-71	12-31-73	6,592	0	C. S. Mott Children's Hospital Ann Arbor Michigan Clack, Thomas D.	PhD
R01 NS07482-06 Studies in the Physiology of Phonation	05-01-73	04-30-74	42,046	0	University of California, San Francisco San Francisco California Shipp, Thomas	PhD
R01 NS07498-06 Peripheral Auditory Mechanisms	10-01-72	09-30-73	56,889	2	Washington University Saint Louis Missouri Pfeiffer, Russell R.	PhD

	Grant Number Project Title	Budget Period		Fiscal Year 1973 Award	No. of Future Years	Sponsoring Institution and Principal Investigator		
P15	NS07514-06 Research Program of Aphasic Involvements in Children	09-01-72	08-31-73	$157,136	0	Stanford University Stanford Eisenson, Jon	California	PhD
R01	NS07555-06 Cinefluorographic Studies of Speech Articulation	10-01-72	09-30-73	35,782	0	University of Iowa Iowa City Moll, Kenneth L.	Iowa	PhD
R01	NS07615-13 New Measures of Aphasic Symptom Variables	09-01-72	08-31-73	37,055	2	Clark University Worcester Goodglass, Harold	Massachusetts	PhD
R01	NS07616-11S1 Acoustic Perception and Echo-Orientation	09-01-72	12-31-72	8,714	0	Yale University New Haven Novick, Alvin	Connecticut	MD
R01	NS07616-12 Acoustic Perception and Echo-Orientation	01-01-73	12-31-73	44,768	1	Yale University New Haven Novick, Alvin	Connecticut	MD
R01	NS07661-06S1 Central Neural Mechanisms of Hearing	11-01-72	04-30-73	4,043	0	University of California, Irvine Irvine Thompson, Richard F.	California	PhD
R01	NS07661-07A1 Central Neural Mechanisms of Hearing	05-01-73	08-31-73	52,580	0	University of California, Irvine Irvine Thompson, Richard F.	California	PhD

Grant Number Project Title	Budget Period	Fiscal Year 1973 Award	No. of Future Years	Sponsoring Institution and Principal Investigator
R01 NS07720-06 The Structure and Projections of the Cochlear Nuclei	01-01-73 12-31-73	$34,556	2	Boston University Boston Massachusetts Warr, William B. PhD
R01 NS07773-03S1 CNS Response Tests of Auditory Critical Band Theory	01-01-73 08-31-73	5,479	0	University of Maryland Profess. Baltimore Maryland Glaser, Edmund M. DEn
R01 NS07787-06 Psychophysiological Studies of Binaural Interaction	01-01-73 08-31-74	$39,306	2	University of California, Berkeley Berkeley California Hafter, Ervin R. PhD
P15 NS07790-05S1A1 Auditory Dysfunction: The Cochlea	09-01-72 12-31-72	13,407	3	University of Pittsburgh Pittsburgh Pennsylvania Bilger, Robert C. PhD
P15 NS07790-06 Auditory Dysfunction: The Cochlea	01-01-73 12-31-73	129,999	2	University of Pittsburgh Pittsburgh Pennsylvania Bilger, Robert C. PhD
P15 NS07791-05 Outpatient Research Center for Sensorineural Deafness	09-01-72 08-31-73	93,454	3	Northwestern University at Chicago Chicago Illinois Carhart, Raymond T. PhD
R01 NS07860-06 Anatomical Studies of the Internal Ear	09-01-72 08-31-73	26,457	0	Pennsylvania State University Hershey Pennsylvania Baird, Irwin L. PhD

Grant Number Project Title	Budget Period		Fiscal Year 1973 Award	No. of Future Years	Sponsoring Institution and Principal Investigator		
R01 NS07974-05S1 Screening Test for Childhood Deafness	05-01-73	05-31-73	$5,190	0	Stanford University Stanford Simmons, F. Blair	California	MD
R01 NS08000-06 Biochemistry of Prominent Structures of the Cochlea	04-01-73	03-31-74	48,239	2	Washington University Saint Louis Matschinsky, Franz M.	Missouri	MD
R01 NS08041-05 Mechanisms of Speech Production	12-01-72	11-30-73	56,372	1	Johns Hopkins University Baltimore Heinz, John M.	Maryland	ScD
R01 NS08177-05 Acoustic Measures for Detecting Laryngeal Pathology	11-30-75	11-30-74	54,839	1	Speech Communications Res. Lab. Santa Barbara Koike, Yasuo Y.	California	MD
R01 NS08181-04 Auditory Thalamo-Cortical Projections	05-01-73	04-30-74	29,122	0	University of Washington Seattle Miller, Josef M.	Washington	PhD
R01 NS08193-05 Experimental Studies on Cochlear Mechanisms	12-01-72	11-30-73	72,698	1	University of California, Los Angeles Los Angeles Honrubia, Vicente	California	MD
R01 NS08306-05 Speech-Analyzing Aids for the Deaf	05-01-73	04-30-74	46,746	0	University of Massachusetts, Amherst Amherst Thomas, Ian B.	Massachusetts	PhD

Grant Number Project Title	Budget Period	Fiscal Year 1973 Award	No. of Future Years	Sponsoring Institution and Principal Investigator
R01 NS08335-06 Experimental Studies on Vestibular Mechanisms	05-01-73 04-30-74	$61,224	3	University of California, Los Angeles Los Angeles California Ward, Paul H. MD
R01 NS08365-06 Embryology of the Inner Ear	05-01-73 04-30-74	81,479	0	Yeshiva University New York New York Ruben, Robert J. MD
R01 NS08451-05 Efferent Projections of the Vestibular Nuclei	02-01-73 01-31-74	18,096	0	Massachusetts Eye & Ear Infirmary Boston Massachusetts Gacek, Richard R. MD
R01 NS08542-05 Audiologic Correlates of Central Auditory Disorders	02-01-73 01-31-74	31,636	0	Baylor College of Medicine Houston Texas Jerger, James F. PhD
R01 NS08569-05 Development and Cytodifferentiation of the Inner Ear	05-01-73 04-30-74	23,922	1	Northwestern University at Chicago Chicago Illinois Orr, Mary F. PhD
R01 NS08611-03 Central Connections of the Eighth Nerve	09-01-72 08-31-73	12,788	0	University of Delaware Newark Delaware Boord, Robert L. PhD
R01 NS08612-02S3 Effects of Deafness on Central Auditory Function	05-01-73 08-31-73	12,935	0	Callier Hearing and Speech Center Dallas Texas Gerken, George M. PhD

Grant Number Project Title	Budget Period		Fiscal Year 1973 Award	No. of Future Years	Sponsoring Institution and Principal Investigator		
R01 NS08635-04 Cochlear Distortion and the Role of CM in Hearing	01-01-73	12-31-73	$66,245	4	Northwestern University at Evanston Evanston Dallos, Peter J.	Illinois	PhD
R01 NS08728-04 Neuromuscular Mechanisms of the Larynx	09-01-72	08-31-73	51,935	1	Northwestern University at Chicago Chicago Hast, Malcolm H.	Illinois	PhD
R01 NS08754-04 Psychophysics of Binaural Hearing	10-01-72	09-30-73	62,330	2	University of Texas, Austin Austin McFadden, Dennis	Texas	PhD
R01 NS08811-04 The Auditory Aberrations of Multiple Sclerosis	10-01-72	09-30-73	68,102	1	Northwestern University at Chicago Chicago Noffsinger, Douglas	Illinois	PhD
R01 NS08813-04 Structure and Function of the Inner Ear	09-01-72	08-31-73	80,900	4	University of Oregon Medical School Portland Smith, Catherine A.	Oregon	PhD
R01 NS08854-04 Middle Ear Mucosa–Normal and Experimental	10-01-72	08-31-74	34,029	0	Ohio State University Columbus Lim, David J.	Ohio	MD
R01 NS08919-03S1 Voice Quality and Laryngeal Frequency	05-01-73	08-31-73	7,819	0	Syracuse University Syracuse Rothenberg, Martin	New York	PhD

Grant Number Project Title		Budget Period		Fiscal Year 1973 Award	No. of Future Years	Sponsoring Institution and Principal Investigator		
R01	NS08919-04 Voice Quality and Laryngeal Frequency	05-01-73	08-31-74	$28,085	2	Syracuse University Syracuse Rothenberg, Martin	New York	PhD
R01	NS09027-03S1 Nonauditory Functions of Auditory Cortex	01-01-72	08-31-73	5,634	0	University of Pittsburgh Pittsburgh Colavita, Francis B.	Pennsylvania	PhD
R01	NS09219-03 Nonsurgical Recording of Human Cochlear Potentials	09-01-72	04-30-74	36,670	0	Baylor College of Medicine Houston Coats, Alfred C.	Texas	MD
R01	NS09231-03 Study of the Macula Lagenae	09-01-72	12-31-73	36,017	0	University of California, San Francisco San Francisco Miller, Malcolm R.	California	MDP
R01	NS09242-02S1 Air Flow in Voice	09-01-72	12-31-72	1,828	0	Upstate Medical Center Syracuse Colton, Raymond H.	New York	PhD
R01	NS09243-03 Intracellular Responses in Auditory Papilla	09-01-72	08-31-73	26,688	0	Massachusetts Eye & Ear Infirmary Boston Mulroy, Michael J.	Massachusetts	PhD
R01	NS09244-03 Encoding of Vocal Signals in the Auditory System	05-01-73	04-30-74	51,978	0	Cornell University Ithaca Capranica, Robert R.	New York	ScD

	Grant Number Project Title	Budget Period		Fiscal Year 1973 Award	No. of Future Years	Sponsoring Institution and Principal Investigator		
R01	NS09252-03 Analysis of Acoustic Characteristics of Deaf Speech	09-01-72	04-30-74	$40,721	0	City University of New York Gr. New York Levitt, Harry	New York	PhD
R01	NS09278-03 Nature and Clinical Utility of Early AER Components	09-01-72	12-31-73	30,044	0	University of Wisconsin, Madison School Madison Goldstein, Robert	Wisconsin	PhD
R01	NS09293-03 Histopathology of Temporal Bones	09-01-72	04-30-74	26,652	0	University of Colorado Medical Denver Hemenway, William G.	Colorado	MD
R01	NS09355-03S1 Development of AER in Infants and Young Children	03-01-73	08-31-73	18,143	0	University of Wisconsin, Madison Madison Goldstein, Robert	Wisconsin	PhD
R01	NS09374-03 Processing of Acoustic Information	09-01-72	08-31-73	18,471	0	University of Hawaii Honolulu Popper, Arthur N.	Hawaii	PhD
R01	NS09440-03 Ultrastructural Studies on Vestibular Neural Pathways	06-01-73	05-31-74	55,725	0	University of California, Los Angeles Los Angeles Dunn, Robert F.	California	PhD
R01	NS09442-03 Perceptual Masking in Normal and Impaired Hearers	09-01-72	08-31-73	46,747	2	Northwestern University at Evanston Evanston Carhart, Raymond T.	Illinois	PhD

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R01	NS09551-03 Unit Correlates of Auditory Behavior	09-01-72	04-30-74	$16,417	0	University of California, Santa Barbara Santa Barbara Clopton, Ben M.	California	PhD
R01	NS09570-09S1 Blood Flow Changes in Otic & Nasal Tissue	06-01-73	08-31-73	10,528	0	Emory University Atlanta Jackson, Richard T.	Georgia	PhD
R01	NS09590-03 Communication Skills in Deaf and Hearing Children	09-01-72	04-30-74	23,644	0	Bowling Green State University Bowling Green Hoemann, Harry W.	Ohio	PhD
R01	NS09627-03 Physiological Bases of Dysarthria	02-01-73	08-31-74	32,794	0	University of Wisconsin, Madison Madison Netsell, Ronald W.	Wisconsin	PhD
R01	NS09656-03 Speech Breathing Mechanics	02-01-73	01-31-74	13,771	0	University of Wisconsin, Madison Madison Hixon, Thomas J.	Wisconsin	PhD
R01	NS09663-08 Factors Affecting Temporal Auditory Summation	01-01-73	08-31-74	47,853	0	Upstate Medical Center Syracuse Wright, Herbert N.	New York	PhD
R01	NS09692-03 Study of the Semicircular Canal Afferent Responses	02-01-73	08-31-74	29,195	0	University of California, Los Angeles Los Angeles O'Leary, Dennis P.	California	PhD

	Grant Number Project Title	Budget Period		Fiscal Year 1973 Award	No. of Future Years	Sponsoring Institution and Principal Investigator		
R01	NS09694-02 Studies of Communication	02-01-73	01-31-74	$42,045	1	University of Florida, Gainesville Gainesville Caldwell, David K.	Florida	PhD
R01	NS09713-01S2 Loudness Discomfort and Amplification Relationships	06-01-73	12-31-73	7,118	0	University of California, Los Angeles Los Angeles Dirks, Donald D.	California	PhD
R01	NS09714-01A1S1 An Electrotactile Sound Detector for the Deaf	02-01-73	08-31-73	9,530	0	Institute of Medical Sciences San Francisco Saunders, Frank A.	California	PhD
R01	NS09780-03 Models of Linguistic Performance	06-01-73	05-31-74	97,954	0	University of California, Los Angeles Los Angeles Ladefoged, Peter N.	California	PhD
R01	NS09811-03 The Acquisition of Sign Language and Its Structure	05-01-73	04-30-74	101,165	0	Salk Institute for Biological La Jolla Bellugi, Ursula	California	
P15	NS09823-03 Communicative Disorders Clinical Res. Center (Vestibular)	06-01-73	05-31-74	161,386	0	University of California, Los Angeles Los Angeles Ward, Paul H.	California	MD
R01	NS09863-02 Tubal Dysfunction and Middle Ear Disorder	02-01-73	01-31-74	27,463	1	University of Kansas at Kansas City Kansas City Proud, G. O.	Kansas	MD

	Grant Number Project Title	Budget Period		Fiscal Year 1973 Award	No. of Future Years	Sponsoring Institution and Principal Investigator		
P01	NS09889-03 Investigation of Agents Which Damage the Ear	05-01-73	04-30-74	$116,915	0	University of Oregon Medical School Portland Vernon, Jack A.	Oregon	PhD
R01	NS09949-02 Effects of Vestibular Dysfunction in Man	01-01-73	12-31-73	34,515	1	University of California, San Diego La Jolla Nelson, James R.	California	MD
R01	NS09987-02 Ototoxicity of Diuretic-Antibiotic Combinations	02-01-73	01-31-74	30,740	1	University of North Carolina, Chapel Hill Chapel Hill Prazma, Jiri	North Carolina	MD P
R01	NS10048-02 Mucus Clearance in Secretory Otitis Media	09-01-72	08-31-73	39,760	1	Weizmann Institute of Science Rehovoth Silberberg, Alexander	Israel	PhD
R01	NS10121-01S1 Underwater Sound Localization in Humans	05-01-73	01-31-74	2,600	0	University of Florida, Gainesville Gainesville Hollien, Harry	Florida	PhD
R01	NS10176-02 Neurological & Genetic Analysis of Acoustic Behavior	02-01-73	08-31-73	29,343	0	State University, New York, Stony Brook Stony Brook Hoy, Ronald R.	New York	PhD
R01	NS10214-02 Lateral Dominance and Lateral Word Recognition	01-01-73	05-31-74	13,005	0	Bowling Green State University Bowling Green McKeever, Walter F.	Ohio	PhD

Grant Number Project Title	Budget Period	Fiscal Year 1973 Award	No. of Future Years	Sponsoring Institution and Principal Investigator
R01 NS10238-02 Otoneurological Evaluation of Infants and Children	05-01-73 04-30-74	$67,322	1	Bronx-Lebanon Hospital Center New York New York Eviatar, Lydia MD
R01 NS10268-02 Chemistry and Physiology of Inner Ear Fluids	05-01-73 04-30-74	47,745	1	Presbyterian-University of Pa. Philadelphia Pennsylvania Silverstein, Herbert MD M
R01 NS10399-01S1 Regulatory Mechanisms in Auditory Perception	01-01-73 08-31-73	5,588	0	University of California, Irvine Irvine California Starr, Arnold MD
R01 NS10412-02 Correlative Physiohistopathology of Inner Ear Organs	05-01-73 04-30-74	4,400	1	Teikyo University School of Medicine Tokyo Japan Suzuki, Jun-Ichi MD M
R01 NS10414-02 Studies on Organization of Central Auditory System	05-01-73 04-30-74	39,859	1	University of California, San Francisco San Francisco California Merzenich, Michael M. PhD
R01 NS10448-02 Meniere's Disease: Conservation of Hearing Surgery	05-01-73 04-30-74	38,244	3	Washington University Saint Louis Missouri Arenberg, Irving K. MD
P01 NS10468-02 Studies in the Perception of Speech Events	05-01-73 04-30-74	252,159	1	University of Kansas at Lawrence Lawrence Kansas Schiefelbusch, R. L. PhD

Grant Number Project Title	Budget Period		Fiscal Year 1973 Award	No. of Future Years	Sponsoring Institution and Principal Investigator		
R01 NS10482-02 Studies on the Auditory System	04-01-73	03-31-74	$39,533	1	University of California, San Diego La Jolla Galambos, Robert	California	MD P
R01 NS10522-01S1 Vestibular and Auditory Function of the Sacculus	01-01-73	08-31-73	8,583	0	University of California, Irvine Irvine Kohut, Robert I	California	MD
R01 NS10522-01S2 Vestibular and Auditory Function of the Sacculus	05-01-73	08-31-73	6,854	0	University of California, Irvine Irvine Kohut, Robert I.	California	MD
R01 NS10532-01 Development of a Cochlear Prosthesis	09-01-72	08-31-73	104,172	2	Stanford University Stanford Simmons, F. Blair	California	MD P
R01 NS10551-07 Study of Cancer of the Larynx by Serial Section	04-01-73	03-31-74	26,809	1	Yale University New Haven Kirchner, John A.	Connecticut	MD
R01 NS10608-01 Pathogenesis & Bone Resorption in Aural Cholesteatoma	09-01-72	08-31-73	71,552	4	University of Iowa Iowa City Abramson, Maxwell	Iowa	MD
R01 NS10616-01 Studies of Sound Localization	09-01-72	08-31-73	21,747	1	University of Wisconsin, Madison Madison Thurlow, Willard R.	Wisconsin	PhD

Grant Number Project Title	Budget Period		Fiscal Year 1973 Award	No. of Future Years	Sponsoring Institution and Principal Investigator		
R01 NS10656-01 Stuttering: Behavioral Modification and Biofeedback	09-01-72	08-31-73	$50,816	1	Northeastern University Boston Lanyon, Richard I.	Massachusetts	PhD
R01 NS10668-01 Diagnosis of Acoustic Neuroma by Galvanic Tests	09-01-72	04-30-74	7,708	0	Kensington Hospital Philadelphia Spector, Martin	Pennsylvania	MD
R01 NS10737-01 Aural Combination Tones: Pure and Applied	09-01-72	08-31-74	64,577	0	Massachusetts Institute of Technology Cambridge Goldstein, Julius L.	Massachusetts	PhD
R01 NS10776-01 The Role of Distinctive Features in Speech Perception	02-01-73	01-31-74	5,386	0	Brown University Providence Blumstein, Sheila E.	Rhode Island	PhD
P01 NS10940-01 Otophysiology and Otopathology Program Project	02-01-73	01-31-74	263,008	4	Baylor College of Medicine Houston Alford, Bobby R.	Texas	MD
R01 NS10988-01 Neuropathology of Sensori-Neural Deafness in Man	10-01-72	04-30-74	98,042	0	Temple University Philadelphia Petersen, Robert O.	Pennsylvania	MD
R01 NS11004-01 Synaptic Mechanisms in the Inner Ear	05-01-73	04-30-74	31,431	4	Indiana University, Bloomington Bloomington Fex, Jorgen	Indiana	MD P

Grant Number Project Title	Budget Period		Fiscal Year 1973 Award	No. of Future Years	Sponsoring Institution and Principal Investigator		
R01 NS11022-01 Cinefluorographic Studies of Dysarthric Speech	06-01-73	05-31-74	$33,651	1	University of Wisconsin, Madison Madison Kent, Raymond D.	Wisconsin	PhD
R01 NS11112-01 Histopathology of the Temporal Bone	11-01-72	03-31-74	10,220	0	University of Pennsylvania Philadelphia Snow, James B., Jr.	Pennsylvania	MD
R01 NS11218-01 Single Unit Analysis of the Superior Olivary Complex	01-01-73	04-30-74	44,877	0	University of Texas, Grad. Sch. B. Houston Tsuchitani, Chiyeko	Texas	PhD
R01 NS11220-01 Information-Processing the Auditory System	01-01-73	04-30-74	21,950	0	University of Texas, Grad. Sch.B. Houston Boudreau, James C.	Texas	PhD
R01 NS11221-01 Histopathology of the Temporal Bones of Children	09-01-72	04-30-74	63,591	0	University of Pittsburgh Pittsburgh Myers, Eugene N.	Pennsylvania	MD
R01 NS11459-01 Auditory Systems	06-01-73	08-31-74	42,038	0	Louisiana New Orleans, Louisiana Webster, Douglas B.		PhD

NATIONAL INSTITUTE OF NEUROLOGICAL DISEASES AND STROKE

NINDS TRAINING PROGRAMS – COMMUNICATIVE SCIENCES

Date of Report 03-12-74

Grant Number	Program Director and Institution		Type of Training Budget Period	No. of Trainees	FY 1973 Award	Final Report
T01 NS05116-17	McCabe, Brian F. University of Iowa Iowa City Iowa	MD	Otolaryngology 07-01-73 06-30-74	19	$91,117	
T01 NS05121-17	Naunton, Ralph F. University of Chicago Chicago Illinois	MD	Otolaryngology 07-01-73 06-30-74	7	32,090	
T01 NS05129-17	Nager, George T. Johns Hopkins University Baltimore Maryland	MD	Otolaryngology 07-01-73 06-30-74	12	70,107	
T01 NS05143-17	Schuknecht, Harold F. Massachusetts Eye & Ear Infirmary Boston Massachusetts	MD	Otolaryngology 07-01-73 06-30-74	1	67,765	
T01 NS05144-16	Daly, John F. New York University New York New York	MD	Otolaryngology 07-01-73 06-30-74	2	15,414	
T01 NS05190-15	Ogura, Joseph H. Washington University Saint Louis Missouri	MD	Otolaryngology 07-01-73 06-30-74	23	243,934	

Grant Number	Program Director and Institution		Type of Training Budget Period	No. of Trainees	FY 1973 Award	Final Report
T01 NS05199-16	Harrill, James A. Wake Forest University Winston-Salem North Carolina	MD	Otolaryngology 07-01-73 06-30-74	4	$58,320	
T01 NS05203-13	Biller, Hugh F. Mount Sinai School of Medicine New York New York	MD	Otolaryngology 07-01-73 06-30-74	12	69,120	
T01 NS05213-16	Kirchner, John A. Yale University New Haven Connecticut	MD	Otolaryngology 07-01-73 06-30-74	2	63,747	
T01 NS05229-12	Andrews, Albert H., Jr. University of Illinois Medical Center Chicago Illinois	MD	Otolaryngology 07-01-73 06-30-74	4	109,272	
T01 NS05230-14	Work, Walter P. University of Michigan at Ann Arbor Ann Arbor Michigan	MD	Otolaryngology 07-01-73 06-30-74	12	95,497	
T01 NS05234-15	Baker, Daniel C., Jr. Columbia University New York New York	MD	Otolaryngology 07-01-73 06-30-74	1	0	

Grant Number	Program Director and Institution		Type of Training Budget Period	No. of Trainees	FY 1973 Award	Final Report
T01 NS05248-14	Baron, Shirley H. University of California San Francisco San Francisco California	MD	Otolaryngology 07-01-73 06-30-74	1	$27,371	
T01 NS05258-15	Beidler, Lloyd M. Florida State University Tallahassee Florida	PhD	Sensory Physiology 07-01-73 06-30-74	4	51,981	
T01 NS05276-12	Reed, George F. Upstate Medical Center Syracuse New York	MD	Otolaryngology 07-01-73 06-30-74	4	86,695	
T01 NS05286-15	Hardy, William G. Johns Hopkins University Baltimore Maryland	PhD	Medical Audiology 07-01-73 06-30-74	1	24,245	
T01 NS05291-12S1	O'Keefe, John J. Thomas Jefferson University Philadelphia Pennsylvania	MD	Otolaryngology 07-01-73 06-30-74	12	12,814	
T01 NS05295-14	Ward, Paul H. University of California Los Angeles Los Angeles California	MD	Otolaryngology 07-01-73 06-30-74	2	27,972	

Grant Number	Program Director and Institution		Type of Training Budget Period	No. of Trainees	FY 1973 Award	Final Report
T01 NS05308-14	Wever, Ernest G. Princeton University Princeton New Jersey	PhD	Sensory Physiology 07-01-73 06-30-74	1	$30,331	
T01 NS05315-13	Fitz-Hugh, G. Slaughter University of Virginia Charlottesville Virginia	MD	Otolaryngology 07-01-73 06-30-74	1	4,343	
T01 NS05329-13	Carhart, Raymond T. Northwestern University at Evanston Evanston Illinois	PhD	Audiology 07-01-73 06-30-74	11	63,128	
T01 NS05344-13	Silverman, S. Richard Central Institute for the Deaf Saint Louis Missouri	PhD	Medical Audiology 07-01-73 06-30-74	1	7,683	
T01 NS05349-13	Paparella, Michael M. University of Minnesota Minneapolis Minnesota	MD	Otolaryngology 07-01-73 06-30-74	3	99,908	
T01 NS05358-13	Hudson, William R. Duke University Durham North Carolina	MD	Otolaryngology 07-01-73 06-30-74	5	42,352	

Grant Number	Program Director and Institution		Type of Training Budget Period	No. of Trainees	FY 1973 Award	Final Report
T01 NS05362-12	Girardeau, Frederic L. University of Kansas at Lawrence Lawrence Kansas	PhD	Communication Disorders 07-01-73 06-30-74	3	$42,422	
T01 NS05384-12	Tabb, Harold G. Tulane University, New Orleans New Orleans Louisiana	MD	Otolaryngology 07-01-73 06-30-74	5	63,019	
T01 NS05385-12	Singleton, George T. University of Florida, Gainesville Gainesville Florida	MD BS	Otolaryngology 07-01-73 06-30-74	8	34,285	
T01 NS05397-11	Saunders, William H. Ohio State University Columbus Ohio	MD	Otolaryngology and Audiology 07-01-73 06-30-74	13	84,097	
T01 NS05418-10	Moran, Willard B., Jr. University of Oklahoma Medical Center Oklahoma City Oklahoma	MD	Otolaryngology 07-01-73 06-30-74	8	70,199	
T01 NS05419-10	Schubert, Earl D. Stanford University Stanford California	PhD	Audiology 07-01-73 06-30-74	8	66,495	

Grant Number	Program Director and Institution		Type of Training Budget Period	No. of Trainees	FY 1973 Award	Final Report
T01 NS05420-11	Canter, Gerald J. Northwestern University at Evanston Evanston Illinois	PhD	Speech Pathology 07-01-73 06-30-74	6	$57,093	
T01 NS05425-10S1	Moll, Kenneth L. University of Iowa Iowa City Iowa	PhD	Speech Pathology and Audiology 07-01-72 06-30-73		827	
T01 NS05425-11	Moll, Kenneth L. University of Iowa Iowa City Iowa	PhD	Speech Pathology and Audiology 07-01-73 06-30-74	12	106,551	
T01 NS05435-11	Alford, Bobby R. Baylor College of Medicine Houston Texas	MD	Otolaryngology 07-01-73 06-30-74	3	65,441	
T01 NS05437-11	Ptacek, Paul H. Case Western Reserve University Cleveland Ohio	PhD	Speech Pathology and Audiology 07-01-73 06-30-74	7	70,726	
T01 NS05446-10	Darley, Frederic L. Mayo Foundation Rochester Minnesota	PhD	Speech Pathology 07-01-73 06-30-74	1	15,743	

Grant Number	Program Director and Institution		Type of Training Budget Period	No. of Trainees	FY 1973 Award	Final Report
T01 NS05472-09	De Weese, David D. University of Oregon Medical School Portland Oregon	MD	Otolaryngology 07-01-73 06-30-74	4	$82,011	
T01 NS05475-09	Moore, Paul University of Florida, Gainesville Gainesville Florida	PhD	Communicative Disorders 07-01-73 06-30-74	7	67,273	
T01 NS05476-09	Stram, John American Academy Ophth. and Otolar. Rochester Minnesota	MD	Otolaryngic Pathology 07-01-73 06-30-74	1	42,168	
T01 NS05479-08	O'Neill, John J. University of Illinois, Urbana Urbana Illinois	PhD	Speech Pathology and Audiology 07-01-73 06-30-74	5	18,865	
T01 NS05487-09	Proud, G. O'Neil University of Kansas at Kansas City Kansas City Kansas	MD	Otolaryngology 07-01-73 06-30-74	1	84,258	
T01 NS05499-07	Hayes, Claude S. University of Wisconsin, Madison Madison Wisconsin	PhD	Audiology 07-01-73 06-30-74	7	71,769	

Grant Number	Program Director and Institution		Type of Training Budget Period	No. of Trainees	FY 1973 Award	Final Report
T01 NS05504-08	Hemenway, William G. University of Colorado Medical Center Denver Colorado	MD	Otolaryngology 07-01-73 06-30-74	8	$37,123	
T01 NS05531-06S1	Trail, Mervin Louisiana State Univ. MC, New Orleans New Orleans Louisiana	MD	Otolaryngology 07-01-72 06-30-74	3	4,730	
T01 NS05548-08	Brandow, E. C. Albany Medical College Albany New York	MD	Otolaryngology 07-01-73 06-30-74	2	25,643	
T01 NS05553-08	Donaldson, James A. University of Washington Seattle Washington	MD	Otolaryngology 07-01-73 06-30-74	9	71,890	
T01 NS05582-08	Simmons, F. Blair Stanford University Stanford California	MD	Otolaryngology 07-01-73 06-30-74	2	55,237	
T01 NS05587-06	Gross, Charles W. University of Tennessee Memphis Memphis Tennessee	MD	Otolaryngology 07-01-73 06-30-74	4	55,688	

Grant Number	Program Director and Institution		Type of Training Budget Period	No. of Trainees	FY 1973 Award	Final Report
T01 NS05597-05	Shumrick, Donald A. University of Cincinnati Cincinnati Ohio	MD	Otorhinolaryngology 07-01-73 06-30-74	1	$45,460	
T01 NS05600-06	Gunter, Jack P. University of Texas Hlth. Sci. Ctr., Dallas Dallas Texas	MD BA	Otolaryngology 07-01-73 06-30-74	6	52,836	
T01 NS05617-06	Sisson, George A. Northwestern University at Chicago Chicago Illinois	MD	Otolaryngology 07-01-73 06-30-74	4	100,222	
T01 NS05620-06	Sprinkle, Philip M. West Virginia University Morgantown West Virginia	MD	Communicative Disorders 07-01-73 06-30-74	3	60,959	
T01 NS05625-05	Strong, M. Stuart University Hospital Boston Massachusetts	MD	Otolaryngology 07-01-73 06-30-74	1	24,144	
T01 NS05638-05	Thomas, Gary K. University of Utah Salt Lake City Utah	MD	Communicative Disorders 07-01-73 06-30-74	1	35,481	

Grant Number	Program Director and Institution	Type of Training Budget Period	No. of Trainees	FY 1973 Award	Final Report
T01 NS05668-05	Kare, Morley R. University of Pennsylvania Philadelphia Pennsylvania	PhD MS Sensory Physiology 07-01-73 06-30-74	7	$44,399	
T01 NS05672-03	Bailey, Byron J. University of Texas Med. Br., Galveston Galveston Texas	MD Otolaryngology 07-01-73 06-30-74	7	26,569	
T01 NS05679-03	Hawkins, Joseph E., Jr. University of Michigan at Ann Arbor Ann Arbor Michigan	PhD Audiology 07-01-73 06-30-74	5	38,970	
T01 NS05702-03	Ruben, Robert J. Yeshiva University New York New York	MD Otorhinolaryngology 07-01-73 06-30-74	2	37,996	
T01 NS10070-05	Yarington, Charles T., Jr. University of Nebraska College of Med. Omaha Nebraska	MD AB Otolaryngology 07-01-73 06-30-74	1	35,664	
T01 NS10084-02	Nahum, Alan M. University of California, San Diego La Jolla California	MD Otolaryngology 07-01-73 06-30-74	0	51,582	

NATIONAL CENTER FOR HEALTH STATISTICS

U.S. Department of Health, Education, and Welfare
Health Resources Administration

The National Health Survey Act of 1956 provided for the establishment and continuation of a National Health Survey to obtain information about the health status of the population in the United States. The responsibility for the development and conduct of that program is placed with the National Center for Health Statistics (NCHS), established in 1960 as a fact finding agency. As a result of the Executive reorganization in May 1973, the Center is now an independent agency in the newly established Health Resources Administration under the Assistant Secretary for Health of the Department of Health, Education and Welfare, and continues to carry out its charge of collecting, analyzing and disseminating essential statistical data on the health, disability and medical care status of the United States.

The Center is committed to provide a factual statistical basis for planning national programs designed to advance the health and well-being of the American people. As necessary aspects of its activities, the Center tests existing statistical and survey techniques and develop new techniques; provides technical assistance to, and training for, State and local vital and health statistics personnel; participates in mutually beneficial programs of research in foreign countries; and maintains working relationships on a worldwide basis with a variety of health and health-related organizations.

The following is an outline of the report series for vital and health statistics published by the Center:

Series 1. Programs and collection procedures. — Reports which describe the general programs of the National Center for Health Statistics and its offices and divisions, data collection methods used, definitions, and other material necessary for understanding the data.

Series 2. Data evaluation and methods research. — Studies of new statistical methodology including: experimental tests of new survey methods, studies of vital statistics collection methods, new analytical techniques, objective evaluations of reliability of collected data, contributions to statistical theory.

Series 3. Analytical studies. — Reports presenting analytical or interpretive studies based on vital and health statistics, carrying the analysis further than the expository types of reports in the other series.

Series 4. Documents and committee reports. — Final reports of major committees concerned with vital and health statistics, and documents such as recommended model vital registration laws and revised birth and death certificates.

Series 10. Data from the Health Interview Survey. — Statistics on illness, accidental injuries, disability, use of hospital, medical, dental, and other services, and other health-related topics, based on data collected in a continuing national household interview survey.

Series 11. Data from the Health Examination Survey. — Data from direct examination, testing, and measurement of national samples of the population provide the basis for two types of reports: (1) estimates of the medically defined prevalence of specific diseases in the United States and the distributions of the population with respect to physical, physiological, and psychological characteristics; and (2) analysis of relationships among the various measurements without reference to an explicit finite universe of persons.

Series 12. Data from the Institutional Population Surveys. — Statistics relating to the health characteristics of persons in institutions, and on medical, nursing, and personal care received, based on national samples of establishments providing these services and samples of the residents or patients.

Series 13. Data from the Hospital Discharge Survey. — Statistics relating to discharged patients in short-stay hospitals, based on a sample of patient records in a national sample of hospitals.

Series 20. Data on mortality. — Various statistics on mortality other than as included in annual or monthly reports—special analyses by cause of death, age, and other demographic variables, also geographic and time series analyses.

Series 21. Data on natality, marriage, and divorce. — Various statistics on natality, marriage, and divorce other than as included in annual monthly reports — special analyses by demographic variables, also geographic and time series analyses, studies of fertility.

Series 22. Data from the National Natality and Mortality Surveys. — Statistics on characteristics of births and deaths not available from the vital records, based on sample surveys stemming from these records, including such topics as mortality by socioeconomic class, medical experience in the last year of life, characteristics of pregnancy, etc.

For a list of titles of reports published in these series, write to: Office of Information, National Center for Health Statistics, U.S. Public Health Service, Washington, D.C. 20201.

The following publications, of the National Center for Health Statistics, of interest to professionals who offer services to deaf people, are available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Characteristics of Persons With Impaired Hearing, United States, July 1962 - June 1963, Vital and Health Statistics, Series 10, Number 35, U.S. Government Printing Office — Price $.45

Prevalence of Selected Impairments, United States, July 1963-June 1965, Vital and Health Statistics, Series 10, Number 48, U.S. Government Printing Office — Price $.75

Chronic Conditions Causing Activity Limitation, United States, July 1963-June 1965, Vital and Health Statistics, Series 10, Number 51, U.S. Government Printing Office — Price $.50

Chronic Conditions and Limitations of Activity and Mobility, United States, July 1965 -June 1967, Vital and Health Statistics, Series 10, Number 61, U.S. Government Printing Office — Price $.65

Current Estimates from the Health Interview Survey: United States, 1971, Vital and Health Statistics, Series 10, Number 79, U.S. Government Printing Office — Price $.95

Limitation of Activity Due to Chronic Conditions: United States, 1969-1970, Vital and Health Statistics, Series 10, Number 80, U.S. Government Printing Office (Price not available)

Current Estimates from the Health Interview Survey, United States, 1972, Vital and Health Statistics, Series 10, No. 85 — Price $1.00.

Impairments Due to Injury, United States, 1971, Vital and Health Statistics, Series 10, No. 87 — Price $.90

Hearing Status and Ear Examination Findings Among Adults, United States 1960-1962, Vital and Health Statistics, Series 11, Number 32, U.S. Government Printing Office — Price $.35

Hearing Levels of Children by Age and Sex, United States, Vital and Health Statistics, Series 11, Number 102, U.S. Government Printing Office — Price $.55

Hearing Levels of Children by Demographic and Socioeconomic Characteristics, United States, Vital and Health Statistics, Series 11, Number 111, U.S. Government Printing Office — Price $.50

Hearing Sensitivity and Related Medical Findings Among Children, United States, Vital and Health Statistics, Series 11, Number 114, U.S. Government Printing Office — Price $.70

Hearing and Related Medical Findings Among Children: Race, Area, and Socioeconomic Differentials, United States, Series 11, Number 122, U.S. Government Printing Office — Price $.70

Other significant publications of the Center which may be of interest and use to professionals working in the field of deafness are:

Synthetic State Estimates of Disability, Public Health Service Publication No. 1759, U.S. Government Printing Office — Price $.20

Plan and Operation of the Health and Nutrition Examination Survey, United States, 1971-1973, Vital and Health Statistics, Series 1, Number 10a, U.S. Government Printing Office — Price $.75

Services and Activities Offered to Nursing Home Residents, United States, 1968, Vital and Health Statistics, Series 12, Number 17, U.S. Government Printing Office — Price $.75

Health Resources Statistics: Health Manpower and Health Facilities, 1971, United States, DHEW Publication Number (HSM) 72-1509, U.S. Government Printing Office — Price $3.25

Recently revised data released by the Center relates especially to the prevalence of selected impairments and chronic conditions reported in health interviews of noninstitutionalized civilians during 1971. Probe questions were changed specifically for increased reporting of less serious hearing and visual impairments than previously. That portion of this data relating to visual, hearing and speech impairments is presented in the following table.

PROVISIONAL PREVALENCE[1] OF SELECTED IMPAIRMENTS AND CHRONIC CONDITIONS REPORTED IN HEALTH INTERVIEWS, BY AGE: UNITED STATES CIVILIAN NONINSTITUTIONAL POPULATION, 1971[4]

Condition	Impairment Code (See listing in Series 10, No. 48)	All Ages	Under 17	17-44	45-64	65+	All Ages	Under 17	17-44	45-64	65+
		NUMBER IN THOUSANDS					PREVALENCE PER 100 PERSONS				
Visual impairments[2]	X00-X05	9596	623	2385	2630	3958	4.7	0.9	3.2	6.3	20.5
Unable to read newsprint with corrective lenses	X00	1306	*	91	276	909	0.6	*	0.1	0.7	4.7
	ICDA,[3] 8th Revision, Code Numbers										
Cataract	374,774.3	3013	*	197	565	2212	1.5	*	0.3	1.4	11.4
Glaucoma	375,744.2	797	*	52	268	470	0.4	*	0.1	0.6	2.4
Detachment of retina	376	145	*	*	*	66	0.1	*	*	*	0.3
Color blindness	377.3	1993	168	1032	583	209	1.0	0.3	1.4	1.4	1.1
Other visual impairments	X01-X03, X05	8291	594	2294	2354	3049	4.1	0.9	3.1	5.6	15.8
Hearing Impairments[2]	X06-X09	14491	863	3167	4765	5695	7.2	1.3	4.2	11.4	29.4
Speech Impairment	X10,X11	1934	995	505	268	165	1.0	1.5	0.7	0.6	0.9

Population used in computing rates	202360	66544	74703	41764	19349

*Figure does not meet standards of reliability or precision (more than 30 percent relative standard error)

[1] These prevalence estimates were reported in health interviews in response to a selected list of chronic conditions affecting the respiratory system. The check list of conditions is presented in Appendix III of the "Current Estimates" report for 1971 (*Vital and Health Statistics*, Series 10, No. 79). It should be noted especially for visual and hearing impairments that the probe questions have been changed to increase reporting of less serious impairment. Chronic conditions reported in health interviews are subject to special limitations inherent in data collected in interviews. Chronic conditions reported in interviews may be described as those of which the respondent is aware, and is willing to report to the interviewer. The diagnostic accuracy of reported conditions is dependent on the information the attending physician has passed on to the family, or in the absence of medical attendance, on the previous experience or education of the family. Because of these qualifications, the prevalence estimates produced from interview data will, for some conditions, differ markedly from estimates based on medical records or clinical examination. Several studies have been conducted comparing the reporting of chronic conditions in household interviews with medical records to determine the amount of underreporting. (*Health Interview Responses Compared with Medical Records and Interview Data on Chronic Conditions Compared with Information Derived from Medical Records*, Vital and Health Statistics, Series 2, Nos. 7 and 23). Compensating for some of the underreporting of conditions are overreports of conditions not found in medical records as a result of self-diagnosis or undercounting of the conditions in the medical records. To avoid the possibility of misinterpretation due to conflicting data derived from different sources, please use the qualifying statement "reported in health interviews" in describing the prevalence estimates for any of these chronic conditions.

[2] Increase in prevalence primarily due to revised probe questions.

[3] Conditions reported in interviews are either coded according to the *International Classification of Diseases, Adapted for Use in the United States* as modified further for use in a health interview survey; or by means of a special supplementary code for impairments, used to group impairments by type of functional impairment and etiology. A list of the impairment codes and etiology codes is presented in Vital and Health Statistics, Series 10, No. 48.

[4] These are the latest impairment data. The National Center for Health Statistics plans no immediate update.

The following new data relates to hearing problems of persons three years of age or older. The data are based on household interviews of the civilian, non-institutional population. The data differs from that reported in Series 10, No. 87 inasmuch as these data are for those three years of age and older and excludes tinnitus.

TABLE 1.

Number of Persons, 3 years of age and older, who reported trouble hearing — by speech comprehension group, sex and age: United States 1971.

SEX AND AGE	All Persons Who Reported Trouble Hearing in One or Both Ears (1)	Persons With Bilateral Hearing Problems				Persons With Problems In Only One Ear (6)	Persons Who Reported No Problems In Response To Self Rating Scale (7)	Persons Who Did Not Respond To Self Rating Scale (8)
		Total [1] (2)	Cannot Hear Any Speech (3)	Can Hear Shouted Words (4)	Can Hear Words Spoken In Normal Voice (5)			
	NUMBER OF PERSONS IN THOUSANDS							
Both Sexes								
3 years and older	13,228	6,414	335	2,112	3,878	6,225	336	253
3-16 years	905	394	*	126	240	423	61	*
17-24 years	723	214	*	54	148	462	*	*
25-44 years	2,118	615	36	119	452	1,377	66	60
45-64 years	4,178	1,845	70	487	1,262	2,166	88	79
65 years and older	5,304	3,347	197	1,326	1,777	1,798	88	72
Males								
3 years and older	7,451	3,774	138	1,220	2,372	3,319	176	182
3-16 years	506	233	*	76	145	223	*	*
17-24 years	449	141	*	35	100	277	*	*
25-44 years	1,272	395	*	68	310	797	37	42
45-64 years	2,551	1,244	35	326	870	1,191	46	70
65 years and older	2,672	1,761	77	715	947	830	39	42
Females								
3 years and older	5,777	2,640	197	892	1,506	2,906	159	71
3-16 years	398	160	*	50	95	200	*	*
17-24 years	273	73	*	*	47	184	*	*
25-44 years	847	219	*	51	142	580	*	*
45-64 years	1,626	602	35	161	392	974	41	*
65 years and older	2,632	1,586	120	611	830	967	49	*

[1] Includes 89,000 persons who did not respond to self rating scale.

*Figure does not meet standards of reliability or precision.

Source: Unpublished data from the Health Interview Survey, National Center for Health Statistics.

TABLE 2

Number of Persons Per 1,000 Population, 3 years of age and older who reported trouble hearing — by speech comprehension group, sex and age: United States 1971.

SEX AND AGE	All Persons Who Reported Trouble Hearing in One or Both Ears (1)	Persons With Bilateral Hearing Problems				Persons With Problems In Only One Ear (6)	Persons Who Reported No Problems In Response To Self Rating Scale (7)	Persons Who Did Not Respond To Self Rating Scale (9)
		Total [1] (2)	Cannot Hear Any Speech (3)	Can Hear Shouted Words (4)	Can Hear Words Spoken in Normal Voice (5)			
	NUMBER OF PERSONS PER 1,000 POPULATION							
Both Sexes								
3 years and older	69.0	33.5	1.7	11.0	20.2	32.5	1.8	1.3
3-16 years	16.2	7.1	*	2.3	4.3	7.6	1.1	*
17-24 years	26.5	7.8	*	2.0	5.4	16.9	*	*
25-44 years	44.7	13.0	0.8	2.5	9.5	29.0	1.4	1.3
45-64 years	100.00	44.2	1.7	11.7	30.2	51.9	2.1	1.9
65 years and older	274.1	173.0	10.2	68.5	91.8	92.9	4.5	3.7
Males								
3 years and older	80.9	41.0	1.5	13.2	25.7	36.0	1.9	2.0
3-16 years	17.8	8.2	*	2.7	5.1	7.9	*	*
17-24 years	34.9	11.0	*	2.7	7.8	21.5	*	*
25-44 years	55.7	17.3	*	3.0	13.6	34.9	1.6	1.8
45-64 years	128.6	62.7	1.8	16.4	43.9	60.1	2.3	3.5
65 years and older	326.2	215.0	9.4	87.3	115.6	101.3	4.8	5.1
Females								
3 years and older	58.1	26.5	2.0	9.0	15.1	29.2	1.6	0.7
3-16 years	14.5	5.8	*	1.8	3.5	7.3	*	*
17-24 years	18.9	5.1	*	*	3.3	12.8	*	*
25-44 years	34.5	8.9	*	2.1	5.8	23.6	*	0.7
45-64 years	74.1	27.4	1.6	7.3	17.9	44.4	1.9	*
65 years and older	235.9	142.1	10.8	54.8	74.4	86.7	4.4	*

[1] Includes 89,000 persons who did not respond to self rating scale.

*Figure does not meet standards of reliability or precision

Source: Unpublished data from the Health Interview Survey, National Center for Health Statistics.

EXPLANATION OF DATA

COLUMN 1: Persons who reported deafness or trouble hearing in one or both ears on initial screener question.

COLUMN 2-5: Persons reporting problems hearing in both ears on self rating scale, further distributed by degree of hearing loss based on the Gallaudet Hearing Ability Scale (see Series 2, No. 37).

COLUMN 6: Persons reporting problems in only one ear on self rating scale.

COLUMN 7: Persons reporting no problems in self rating scale, even though they reported trouble hearing in one or both ears on initial screener question.

COLUMN 8: Persons who did not respond to self rating scale.

NATIONAL INSTITUTE OF EDUCATION

LEGISLATIVE AUTHORITY: In June, 1972, President Nixon signed into law the Educational Amendments Act of 1972 (P.L. 92318) which created a new national Institute of Education. This Institute is the principal agency in DHEW for administering and carrying out basic and applied educational research from all fields of study having relevance to American education.

Background

The National Institute of Education (NIE) was established simultaneously with the establishment of a Division of Education in the DHEW. As a companion, independent agency to the Office of Education in this new division, NIE is responsible for Federal activities in education research and development. Its director, appointed by the President, is Dr. Thomas Glennan. The establishment of NIE represents a belief by the Congress that the Federal Government has a responsibility to carry on sustained, systematic and specialized research and development that will improve education in all school districts.

The legislation for NIE gives a very clear statement as to what the Institute should be doing:

> "The Institute shall seek to improve education in the United States through: (1) Helping to solve or alleviate the problems of and achieve the objectives of American education; (2) advancing the practice of education as an art, science, and profession; (3) strengthening of the scientific and technological foundations of education; and (4) building an effective educational research and development system."

Through the NIE, the federal Government is provided an opportunity to emphasize problem areas that cross regional and state boundaries — such as illiteracy and career education. Major emphasis seems to be on activities such as those aimed at showing the rate of increase in education, improvement of ability to measure student and school performance, making higher education more responsive to its potential students, and development of a better understanding of the appropriate division of responsibility for financing higher education between the public and private sectors.

By law, NIE is required to spend at least 90 percent of its resources on outside research and development activities. It is expected that the Institute will be able to bring together a cadre of researchers and practitioners who will work with concerned groups to identify important problems, to propose solutions to them, and to involve all the appropriate elements of the educational community.

Purpose

Within the Institute is the Office of Research, Division of Basic Studies, which is continuing two projects originated in the Bureau of Education for the Handicapped and is intent on initiating several more late in Fiscal Year 1975. Two of these continuing projects are related, specifically, to deafness. One new research project (FAST) relates both to deaf and to blind children. The research to be initiated is supportive of studies seeking information for a specific purpose or course of action and studies in which the investigator seeks to fill a theoretical knowledge gap and to conceptualize and understand selected phenomena. The research programs selected during a detailed selection program in the spring of 1974 are expected to contribute significantly toward one or more of the following goals:

1. To expand and strengthen the foundations of scientific knowledge about the processes and conditions of American education
2. To provide tested solutions to specific practical problems of American education
3. To provide perspectives on and clarification of the goals and issues of American education

Activities

The range of studies covers pre-experimental, historical and philosophical reviews and syntheses, pilot explorations, empirical research on processes and phenomena; and exploratory development to include empirical identification of a developmental need, feasibility testing of alternative versions or a prototype, and development of design specifications. Consideration also is given to proposals for integrative reviews of a field or area to provide state-of-knowledge analyses, investigations of improved research methodologies, studies in psychometrics, as well as research on educational R & D policy and policy-making and studies directed to a science of R & D management. The activity is responsive to all ideas for innovative, high quality, educationally relevant research. Initial funding activity is supportive of individual projects rather than large development or programmatic efforts or parts of such efforts.

Grants may be awarded to colleges, universities, State departments of education, and other public or private agencies, organizations, groups, or individuals. Profit-making organizations are eligible to participate, but they will be awarded contracts rather than grants.

The priority areas of designated interest for grant and contract requests are as follows:

- Essential skills — investigating ways to aid all children in obtaining skills essential to function in society. Initial emphasis will be placed on reading.
- Productivity — Ensuring the nation's continued ability to meet its commitment to quality education at a price it can afford, through improvements in the productivity and efficiency of the education system.
- Education and Work — Improving our understanding of the relationship between education and work, and improving career access and progression.
- Problem-solving — Accumulating the knowledge and experience necessary to assist State education agencies, communities, and their local schools to build the capacity to address local problems and adapt solutions suited to local needs.
- Diversity — Improving our understanding of individual and group differences

in learning styles, needs, and preferences and developing programs that take those differences into account.

Most of the research and development programs formerly supported by the National Center for Educational Research and Development and the National Center for Educational Communication have been transferred to NIE, as were some of the projects of the National Center for Educational Technology. Among the more important are the development of a series of career education models, the Experimental Schools program, and a wide variety of research and development activities which have been carried on by the regional labs and research centers. A program for the training of research and development personnel was also shifted from the Office of Education, and there may be others as the occasion arises. In addition, the Institute will take over education vouchers and several other education experiments funded in the past by the Office of Economic Opportunity.

Program Listing

Grant No.: OEG-0-9-232175-4370

Project Title: The Development and Description of Syntactic Structure in Language of Deaf Children

Duration: 6/1/69-8/31/75

Sponsoring Institution: Univ. of Illinois, Urbana, Ill. 61801

Total Amount: $569,198

Project Director: Dr. Stephen Quigley

Description: The program of research will use transformational-generative grammar as a model for studying the comprehension and production of syntactic structures by deaf children. The program will use three methods for studying syntactic structure: (1) linguistic analysis of written language samples, (2) use of non-verbal and verbal materials for eliciting and manipulating specific syntactic structures, and (3) use of unstructured and structured "cloze" procedures. By using these methods in a series of studies generated within a framework of transformational-generative grammar it is anticipated that the following objectives will be realized: (1) determination of the syntactic patterns in the language comprehension and production of deaf children and youth, (2) description of rules by which the syntactic patterns are generated, (3) construction of a grammar which will describe the phase-structure and transformational rules available to deaf children and youth at various age levels and how these rules differ from the phase-structure and transformational rules of English, (4) the development of materials for the assessment and teaching of certain syntactic structures. The first three items listed are the major objectives of the proposal. Their attainment should provide a body of knowledge concerning the present development of syntactic structures in the language of deaf children which could serve as input to centers concerned with the production of media and materials for the instruction of deaf children and youth.

Grant No.:
32-18-0070-6009(607)

Project Title: The Annual Survey of Hearing Impaired Children and Youth

Duration:
1968-2/28/75

Sponsoring Institution: Office of Demographic Studies, Gallaudet College, Washington, D.C. 20002

Total Amount:
$1,675,005

Project Director: Peter W. Ries

Description: The purpose of this project is to collect, process and disseminate data on hearing impaired individuals through college age in the United States. The National Institute of Education is supporting an initial basic research effort to facilitate the dissemination of this information. The need for such information has been of prime concern to educators, audiologists, legislators, psychologists and others.

The policies and direction of the Annual Survey are determined by a committee representing all areas of services to hearing impaired individuals. The committee is formally called the National Advisory Committee of the Annual Survey of Hearing Impaired Children and Youth. All data collected are held in strictest confidence.

The project is accumulating a large volume of statistical data. A total of 1,041 special education programs were contacted, and 675 reporting sources (approximately 2,400 schools) with about 43,500 students enrolled in their programs cooperated with the Annual Survey for the 1973-74 school year. The processing and dissemination of these data hold wide implications and potential benefits for educational, audiological, medical, psychological, legislative and other services to the hearing impaired. Towards the goal of fully utilizing the data, the program will, within limits of confidentiality, make data available to independent investigators for research purposes. Masters' theses, doctoral dissertations, institutional level research programs, private studies, etc. are solicited.

The major focus of the year in terms of time, personnel and resources was the development and standardization of a Special Edition for Hearing-Impaired Students of the 1973 Stanford Achievement Test. In addition to the research value of the project, it marks the first time that an entire standardized achievement test series has been modified, as necessary, for hearing-impaired students. This included the test materials, the directions for administering the tests, and the over-all procedures. It will also mark the first time that nationally standardized normative data will be available for hearing-impaired students for an entire achievement series.

Publications:
- Series D Number 1 — Academic Achievement Test Performance of Hearing Impaired Students, United States: Spring 1969
- Series D Number 2 — Item Analysis of Academic Achievement Tests of Hearing Impaired Students, United States: Spring 1969
- Series D Number 3 — Additional Handicapping Conditions, Age at Onset of Hearing Loss, and Other Characteristics of Hearing Impaired Students, United States: 1968-69
- Series D Number 4 — Type and Size of Educational Programs Attended by Hearing Impaired Students, United States: 1968-69

Series D Number 5 — Summary of Selected Characteristics of Hearing Impaired Students, United States: 1969-70

Series D Number 6 — Audiological Examinations of Hearing Impaired Students, United States: 1969-70

Series D Number 7 — Characteristics of Hearing Impaired Students Under Six Years of Age, United States: 1969-70

Series D Number 8 — Item Analysis of an Achievement Testing Program for Hearing Impaired Students, United States: Spring 1971

Series D Number 9 — Academic Achievement Test Results of a National Testing Program for Hearing Impaired Students, United States: Spring 1971

Series D Number 10 — Characteristics of Hearing Impaired Students by Hearing Status, United States: 1970-71

Series D Number 11 — Studies in Achievement Testing, Hearing-Impaired Students, United States: Spring 1971

Series D Number 12 — Reported Causes of Hearing Loss for Hearing-Impaired Students, United States, 1970-71

Series D Number 13 — Further Studies in Achievement Testing, Hearing-Impaired Students, United States, Spring 1971

Series D Number 14 — Additional Handicapping Conditions Among Hearing-Impaired Students, United States, 1971-72

Series C Number 1 — National Survey of State Identification Audiometry Programs and Special Educational Services for Hearing-Impaired Children and Youth, United States, 1972

Grant No.:
OEG-0-72-1211

Project Title: Project F.A.S.T. (Facilitating Academic Study Techniques) for Handicapped Children

Duration:
1/7/72-2/28/75

Sponsoring Institution: Texas A & M Research Foundation, College Station, Texas 77843

Total Amount:
$195,547

Project Director: Dr. Clessen J. Martin

Description: The general objectives of this research project are twofold. First, the goal is to apply the associative learning strategy technique to the learning of a basic sight vocabulary among educable mentally retarded children and to develop instructional techniques and materials based upon experimental results from several experiments designed to facilitate word recognition skills among these children. Second, the goal is to develop objective telegraphic reducation procedures whereby existing educational materials may be condensed into a telegraphic-type format and to assess the effects which these reduction procedures have upon the comprehension of such telegraphic materials among deaf and blind children.

PART III

OTHER ACTIVITIES

ARMY AUDIOLOGY AND SPEECH CENTER
WALTER REED ARMY MEDICAL CENTER

Director: John H. Mather, M.D., Major, MC
Assistant Director: Don W. Worthington, Ph.D., Captain, MSC

The Army Audiology and Speech Center is a diagnostic and treatment center for active duty and retired military personnel, and for dependents of military personnel. It is located at the Forest Glen Annex of Walter Reed Army Medical Center. The Center is equipped to identify, diagnose, and treat problems of hearing and speech, and to rehabilitate individuals with these disorders. The staff includes an otolaryngologist, audiologists, speech pathologists and other skilled paramedical personnel.

The Audiology Department has a Hearing Evaluation Section which has the most modern equipment for evaluation of cochlear and vestibular disorders. The Hearing Evaluation Section is equipped for routine hearing evaluation, speech audiometry, evaluation of nonorganic hearing problems, special diagnostic evaluation (peripheral and organ, retrocochlear, central auditory pathways), diagnostic evaluation of conductive hearing loss (acoustic impedance measurements) and for the evaluation of small children and infants (sound field, conditioned audiometric techniques, electrophysiological methods). Hearing aid selection is also done, which includes hearing aid evaluation, issuance, and maintenance for active duty and retired military personnel. Additional facilities include an ear mold laboratory and a hearing aid repair section.

Electronystagmography (ENG) is used in the differential evaluation of suspected vestibular pathology.

The Aural Rehabilitation Section of the Center has a two-week instruction program for its hearing impaired military personnel. The program emphasizes four aspects:

1. Understanding your hearing loss and hearing aid
2. Speechreading
3. Auditory training
4. Hearing conservation

The Speech Section works in conjunction with the Aural Rehabilitation Section. It treats a wide variety of speech and communication problems. Included are those associated with traumatic injury, brain damage, voice disorders, stuttering and the laryngectomy patient (esophageal speech).

Research is conducted in such areas as hearing conservation, retrocochlear pathology, effects of noise exposure on hearing loss, conductive hearing loss evaluation and the vestibular system.

All new military audiologists come to the Center for a three-week orientation program, prior to going to their assigned posts.

Patients treated at the Center have the benefit of the medical facilities of the Walter Reed General Hospital for any further evaluation and treatment of their audiologic problems. The staff includes board certified otolaryngologists with advanced training in all aspects of modern otologic surgery.

Grant No.: BP 5028

Project Title: An Experimental Analysis of Aural Rehabilitation Using Programmed Instruction

Duration: July 1968-Sept. 1974

Sponsoring Institution: Army Audiology and Speech Center, Clinical Research Service, Walter Reed General Hospital, Walter Reed Army Medical Center, Washington, D.C. 20012

Project Director: Edward B. Muth

Description: Provision of programmed aural rehabilitation materials for the Army's acoustically handicapped, and use of these materials.

Grant No.: WRAMC 2504

Project Title: Predicting Speech-Reading Performance from an Analysis of Auditory Confusion

Duration: March 1972-January, 1974

Sponsoring Institution: Army Audiology and Speech Center, Clinical Research Service, Walter Reed General Hospital, Walter Reed Army Medical Center, Washington, D.C. 20012

Project Director: Brian E. Walden, Ph.D.

Description: Application of an analysis of the auditory confusion of hearing-impaired listeners to an attempt to predict the potential benefit of lip reading to the patient. See, "Predicting audiovisual consonant recognition ability of hearing impaired observers", Walden, Prosek, Worthington. *J. Speech & Hearing Research* (In Press).

Grant No.: WRAMC unassigned

Project Title: Dimensions of Visual Consonant Perception in Hearing-Impaired Adults

Duration: April 1973-Nov. 1974

Sponsoring Institution: Army Audiology and Speech Center, Clinical Research Service, Walter Reed General Hospital, Walter Reed Army Medical Center, Washington, D.C. 20012

Project Director: Brian E. Walden, Ph.D.

Description: Application of multidimensional scaling to determine the maximum number of visually contrastive (homophenous) consonant categories used by hearing-impaired adults in lipreading.

Grant No.: WRAMC 2503

Project Title: The Prevalence of Hearing Loss Within Selected U.S. Army Branches

Duration: Spring, 1973-Spring, 1975

Sponsoring Institution: Army Audiology and Speech Center, Clinical Research Service, Walter Reed General Hospital, Walter Reed Army Medical Center, Washington, D.C. 20012

Project Director: Col. Harry W. McCurdy

Description: Survey of the prevalence of noise-induced hearing loss within the infantry, artillery, and armor branches of the U.S. Army.

Grant No.: WRAMC 2501

Project Title: The Aerodynamics of Voice Disorders

Duration: Spring, 1974-Summer, 1975

Sponsoring Institution: Army Audiology and Speech Center and the Clinical Research Service, Walter Reed General Hospital, Walter Reed Army Medical Center, Washington, D.C. 20012

Project Director: Robert A. Prosek, Ph.D.

Description: Quantification of oral breath-stream use in patients with differing voice disorders.

Grant No.: WRAMC 2502

Project Title: Articulatory Characteristics of the Laryngectomee

Duration: Winter, 1973-Winter, 1974

Sponsoring Institution: Army Audiology and Speech Center and Clinical Research Service, Walter Reed General Hospital, Walter Reed Army Medical Center, Washington, D.C. 20012

Description: Describes the various changes in articulation that occur as a result of the laryngectomy operation.

Grant No.:

Project Title: A Comparison of an Objective Hearing Aid Evaluation With a Subjective Hearing Aid Selection Procedure.

Duration:

Sponsoring Institution: Army Audiology and Speech Center, Walter Reed Army Medical Center, Washington, D.C. 20012

Project Directors: Rodney M. Atack and Michael J. Moul

Description: Compare an objective clinical hearing aid evaluation with the patient's preferred selection of amplification following a two week trial period.

TRAINING PROGRAMS CONCERNING HEARING DISORDERS (ARMY)

PROGRAM DIRECTOR AND INSTITUTION	TYPE OF TRAINING PROGRAM	NUMBER OF TRAINEES/YEAR
Mark J. Wegleitner, MD Colonel, MC Walter Reed General Hospital, Walter Reed Army Medical Center Washington, D.C. 20012	Otolaryngology	3
S.R. LeMay, M.D. Lt. Colonel, MC Brooke, General Hospital Fort Sam Houston Houston, Texas 78234	Otolaryngology	2
E.A. Krekorian, M.D. Colonel, MC Fitzsimons General Hospital Denver, Colorado 80240	Otolaryngology	2
L. L. Hayes, M.D. Lt. Colonel, MC Madigan General Hospital Fort Lewis, Washington 98433	Otolaryngology	1
John H. Mather, MD Major, MC Don W. Worthington, Ph.D., Captain, MSC Army Audiology and Speech Center Forest Glen Section, Walter Reed General Hospital Washington, D.C. 20012	Audiology Orientation Program	20

THE DEAFNESS RESEARCH FOUNDATION

The Deafness Research Foundation, established in February 1958, is incorporated as a nonprofit organization under the laws of New York State. It is the nation's only voluntary health agency devoted primarily to advancing otological research. DRF is supported by contributions (tax-free) from individuals, foundations, corporations, and the medical profession. Associated with the Foundation is the Centurion Club which was organized in 1963 by a group of leading ear, nose, and throat specialists. The goal of the Club's members is to raise sufficient funds, through annual membership dues, to underwrite DRF's administrative costs, leaving all other gifts available for use in research and related programs. During the period 1958-1972, the Foundation has directed $4.8 million for ear research and related objectives.*

DRF OBJECTIVES

The Foundation's current objectives include:

1. Sponsoring research into the causes and improved means of treatment and prevention of deafness and other ear disorders.
2. Encouraging young scientists to enter the field of otological research.
3. Increasing general awareness of the seriousness of deafness and of the importance of regular ear examinations.
4. Encouraging individuals with ear disorders to bequeath their inner ear structures to the Temporal Bone Banks Program for Ear Research. (see below)

DRF PROGRAM

The Foundation has been in the forefront in sponsoring research in sensorineural deafness, surgical techniques to restore hearing, deafness due to mumps and measles, hearing loss after prolonged exposure to high levels of environmental noise, inherited hearing impairments, and improved methods of diagnosis to determine the presence of ear tumors.

Three DRF groups are principally involved in planning and developing the Foundation's research program; they are:

1. *The Research Policy Committee* — recommends, for consideration by the Board of Directors, the research policies that provide guidelines to the Scientific Review Committee.

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*Details on all aspects of its policies and programs may be obtained from the Deafness Research Foundation, 366 Madison Avenue, New York, New York 10017.

2. *The Scientific Review Committee* — evaluates all research grant applications; it is composed of five rotating members (one being replaced each year) selected from the nation's leading otolaryngologists, otologists, and investigators in the field of ear, nose, and throat diseases.

3. *The Grants Approval Board* — makes the final determination in awarding grants after considering the recommendations of the Scientific Review Committee; it is composed of professional and lay members of DRF's Board of Directors.

THE TEMPORAL BONE BANKS PROGRAM FOR EAR RESEARCH

This major activity of DRF was launched in 1960 in cooperation with the American Academy of Ophthalmology and Otolaryngology. The Armed Forces Institute of Pathology also participates in the program.

DRF conducts a nation-wide public education program to encourage individuals with hearing disorders to bequeath their inner ear structures for otological research. Participating in the program are leading universities and medical centers where these pathological specimens are studied at some 39 temporal bone banks (ear research laboratories).

Until the end of last year, coordinating the network of laboratories and maintaining records on the donors was carried out in four regional centers (Johns Hopkins, University of Chicago, Baylor, and University of California San Francisco). In January 1972 these were consolidated into a single Center serving the entire nation; it is The National Temporal Bone Banks Center of The Deafness Research Foundation, The Johns Hopkins University, Baltimore, Maryland.

1974 RESEARCH GRANTS

AREA OF SENSORI-NEURAL DEAFNESS

Cochlea

1. *Human Electrocochleography (1st year)* — Louisiana State University — To record VIII nerve action potentials in patients with various pathologies and in normals. A methodology to obtain VIII nerve action potential records from infants and children, a population difficult to test by conventional means, would be valuable.

2. *Histopathology of the Inner Ear of Aging Animals (1st year)* — Washington University — To survey age-related changes in the cochlea and VIII nerve. Findings will clarify interaction between age changes and hearing damage caused by noise, otosclerosis, etc.

3. *Electrocochleography (2nd year)* — Yeshiva University (Einstein) — To measure cochlear microphonic and VIII nerve action potentials to acoustic stimuli. Such information can be used in determining suitable candidates for a cochlear implant.

4. *Alteration of Existing Cochlear Model to Include a Vestibular System for Inner Ear Fluids (1st year)* — Ear Research Institute (Los Angeles) — To conduct func-

tion experiments by blocking canals, varying pressures, etc. on an expanded cochlear model. Work such as this is helpful in understanding ear mechanics, and should throw light on hearing loss due to otosclerosis and Meniere's disease.

5. *Study of Hair Cell Synapses with Combined Golgi and Electron Microscopic Methods (1st year)* — Harvard Medical School — To determine structural and functional differences between the inner and outer hair cells of the cochlea. New approaches to the diagnoses and treatment of nerve deafness, including possible prosthetic devices, may result from this study.

6. *Vessels and Nerves of the Modiolus in Man and Monkey (1st year)* — University of Michigan — To study the vessels and nerves of the central pillar of the cochlea. Findings of the pathology of the inner ear blood vessels could indicate whether vascular changes hasten the onset of presbycusis and other forms of sensorineural hearing loss.

7. *Communication Routes of Inner Ear Fluids (2nd year)* — University of Colorado — To investigate, electronmicroscopically, pathways in the tissues around the perilymphatic spaces in the cochlea. Knowledge of the fluid physiology of the inner ear will contribute to the understanding of pathological conditions such as Meniere's disease.

8. *Cochlear Morphology Following Laser Surgery of Primate Middle Ear (1st year)* — Thomas Jefferson University — To investigate possible side effects on cochlear facial nerve function resulting from the application of the laser beam to the optic capsule. This study could be the basis for an assessment of the practicality of laser stapes microsurgery.

9. *Terminal Innervation of Inner Ear Structures (1st year)* — University of Michigan — To clarify the basic features of the cochlear neural wiring plan. Findings will have implications for the work being carried on in the stimulation of the inner ear (cochlear implants).

Genetics

1. *Experimental Cytomegalovirus Infection (1st year)* — Jewish Hospital (St. Louis) — To correlate data from experiments with CMV infection found in inner ear of mouse with data from pathologic study of human inner ear. This study of pathological mechanisms of viral-induced inner ear deafness could indicate whether CMV infection of inner ear can resolve without residual nerve type hearing loss.

2. *X-Ray Microanalysis of Inner Ear Tissue (2nd year)* — Ohio State University — To analyze elements present in cell organelles, cells of the cochlea and tissue covering outer wall of cochlear duct. Information obtained will add to the understanding of congenital deafness.

3. *Organogenesis of the Organ of Corti in Humans and Rodents (1st year)* — U. of City of N.Y. (Mt. Sinai) — To investigate the normal ultrastructural events in the developing cochlea which, if perverted or altered, may lead to congenital deafness.

This work will cast light on the vulnerability of the ear from period of otocyst formation until birth.

4. *Clinicopatholgic Study of the Relation Between Cytomegalovirus Infection and Congenital Deafness (2nd year)* — Washington University — To study temporal bones (18 weeks of gestation to 21 days old) for clinical and pathological aspects of cytomegalovirus infection and hearing loss. Findings could indicate manner in which genetic deafness results from CMV infection.

5. *Influence of the Rhombencephalon upon the Development of the Mammalian Otocyst "In Vitro" (2nd year)* — Yeshiva University (Einstein) — To investigate, by explanting different mouse embryo otocysts into identical organ culture systems, the influence of the posterior portion of the brain upon the development of the inner ear. This can be an initial step in defining cellular mechanism that produces abnormal development of inner ear and subsequent congenital deafness.

6. *Ultrastructure of Cochlear Nuclei, and Changes in Kernicterus (3rd year)* — University of Iowa — To determine what happens in kernicterus (a condition associated with high levels of red bile pigment in the blood) that causes hearing loss. Information on how kernicterus causes congenital deafness.

Implants

1. *Implantable Electromagnetic Hearing Aid (3rd year)* — University of Toronto — To develop an efficient implantable electromagnetic audio frequency transducer. Results could indicate the safety and utility of cochlear implants under controlled conditions.

2. *Development of Standard Method for Selection and Rehabilitation of Cochlear Implant Patients (1st year)* — Ear Research Institute (Los Angeles) — To test effectiveness of cochlear implant in communication areas and determine rehabilitation goals and procedures. This is information on the effect of a cochlear implant on recipient's daily life, and it will indicate the rehabilitation goals that can be expected.

3. *Development of an Electrical Prosthesis for Sensori-Neural Hearing Loss (3rd year)* — University of Oregon — To develop a method of electrical stimulation of the VIII nerve. The manner in which complex sounds, including speech, are coded, will be used in the design of an implant prosthesis.

Nerve Deafness

1. *Ultramicroscopic Changes of the Inner Ear in Myxedema (3rd year)* — University of Minnesota — To determine the nature of the hypothyroid state on hearing. This study will demonstrate whether changes observed in the laboratory animal are due to a truly hypothyroid state, or caused by other circumstances.

Neuro-Physiology

1. *Cortical Lesions and Auditory Perceptual Function — A Behavioral Conditioning and Morphological Study (1st year)* — Baylor College of Medicine — To study perceptual changes that may occur as a result of cortical damage. Knowledge of the features of complex sounds that are difficult for the brain-damaged patient to discriminate would be useful, particularly in remedial programs.

2. *Electrophysiological Correlates of Auditory Fatigue: Changes in Cochlear Nonlinearities (1st year)* — Temple University — To measure auditory fatigue in terms of alterations of hair-cell nonlinearity. Information on changes in the hair-cell excitation process, so far not found by other measures, including the cochlear microphonic, could result.

3. *Central Vestibular Connections in Cat and Monkey (1st year)* — Boston State Hospital — To study the central pathways of the vestibular apparatus by placing lesions along the presumed course of the system. This is basic research in an area where little is known.

Physiological Mechanisms Related to Priming for Audiogenic Seizures in Rodents (1st year) — University of Pennsylvania — To demonstrate, physiologically, what happens when mice are primed with sound for audiogenic seizure. This study could throw light on the effects of early exposure to excessive acoustic stimulation.

5. *Studies of Excitation Mechanisms in Hair-Cell Systems (3rd year)* — U. of California at Los Angeles — To investigate the nature of spontaneous and physiologically-evoked neural activity in hair-cell systems. Findings could be of significant value in understanding what can be expected from use of an implant in sensori-neural deafness.

Noise

1. *Effect of Noise on the VIII Nerve and Cochlear Nucleus (1st year)* — State U. of N.Y. (Syracuse) — To determine how the effect of noise on the VIII nerve and cochlear nucleus reflect changes in auditory sensitivity during temporary and permanent threshold shifts in hearing. There is a serious lack of data in this area.

2. *Pitch Discrimination in Chinchilla Following Noise Exposure (2nd year)* — University of Minnesota — To determine abnormalities in pitch discriminations in chinchillas that have received noise exposure to destroy outer hair cells, yet exhibit normal hearing of pure tones. Work on deleterious effects of pure tones of noise on inner ear.

Sudden Deafness

1. *Hyperbaric Oxygen Treatment of Induced Sudden Hearing Loss (1st year)* — U. of California at Irvine — To determine whether, by promptly providing more oxygen to the cochlea, the process of sudden hearing loss may be reversed and cell destruction prevented. This work could indicate whether hyperbaric oxygen can reverse tissue changes secondary to vascular blockage of cochlear vessels.

AREA OF MIDDLE-EAR DEAFNESS

Serous Otitis Media

1. *Physiology of the Eustacian Tube in the Pathogenesis of Middle-Ear Infection (2nd year)* — Tufts University — To evaluate Eustachian tube function of children before and after adenoidectomy. A simple technique, useful in making an effective selection of patients for adenoidectomy, could result from this study.

2. *Etiopathogenesis of Recurrent Serous Otitis (1st year)* — West Virginia University — To study the causes of recurrent middle-ear effusion and clarify the role immune reactions and enzyme systems play in this disease. Findings would provide a model to understand other human immunologic diseases.

GENERAL

Hearing Testing

1. *Human Brain Stem Auditory Evoked Responses (2nd year)* — Methodist Hospital (Houston) — To study the feasibility of recording electrical activity along the central auditory pathway. Results will estalish the normal range of evoked response and the structures involved in its generation.

2. *Evaluation of Impedance Audiometry in Primates (1st year)* — Baylor College of Medicine — To determine if impedance audiometry (a technique used to evaluate both the conductive and sensori-neural function in human patients, which is limited by its inability to isolate the effects of disease entities when two or more are present simultaneously) can be applied to primates. If so, it will be possible to isolate the effects of concurrent pathologies.

3. *Crib-O-Gram: An Automated Hearing Screening Test for Newborns (1st year)* — Stanford University — To perfect and validate an automated hearing test for infants that has been developed on a five-year, federally-funded research project. This innovative hearing test will make it possible to screen and score a nursery of 32 bassinets in about one-half hour.

Vestibular Physiology

1. *Digital Computer Analysis of Saccade and Tracking Eye Movements (1st year)* — U. of California at Los Angeles — To study diseases of the vestibulo-ocular system by correlating clinical observations of abnormal eye movements, in animals, with human research. Findings of this complex study, should give quantitative information about eye movements in a variety of conditions i.e. Meniere's disease, acoustic neuroma, multiple sclerosis, labyrinthitis and neuro-otologic problems.

SUMMARY OF 1974 RESEARCH GRANTS

Category	Number	
AREA OF SENSORI-NEURAL DEAFNESS		
Cochlea	9	
Genetic	6	
Implants	3	
Nerve Deafness	1	
Neuro-physiology	5	
Noise	2	
Sudden Deafness	1	
		27
AREA OF MIDDLE-EAR DEAFNESS		
Serous Otitis Media	2	
		2
GENERAL		
Hearing Testing	3	
Vestibular Physiology	1	
		4
Total number of 1974 grants		33